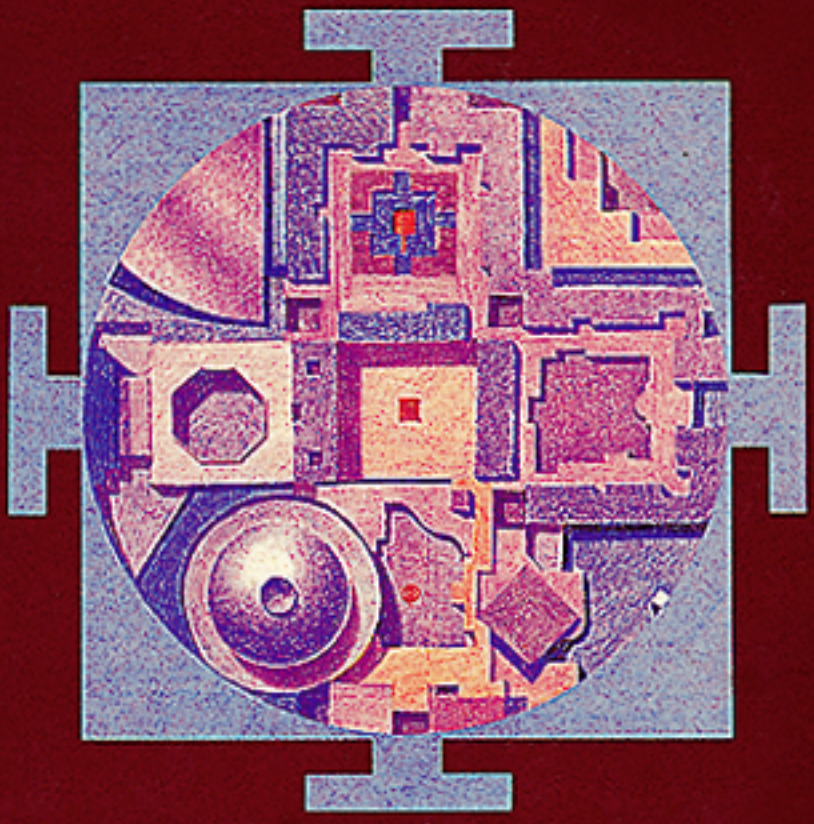
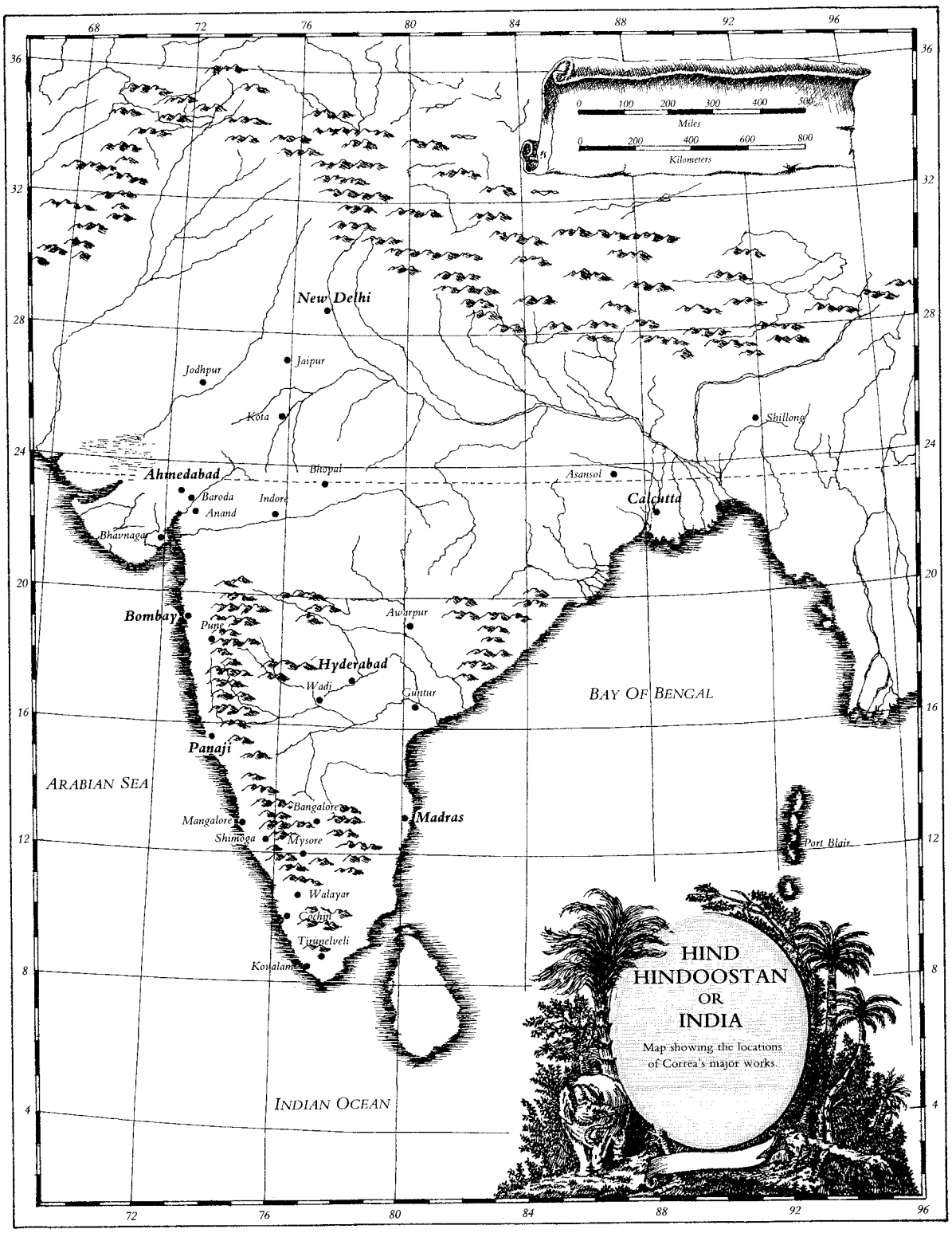
CHARLES CORREA

Architect in India



Hasan-Uddin Khan
with essays by Sherban Cantacuzino and Charles Correa

A Mimar Book
Butterworth Architecture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Port Blair
Walayar
Cochin
Tirunelveli
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INDIAN OCEAN
HIND
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OR
INDIA
Map showing the locations
of Correa's major works.

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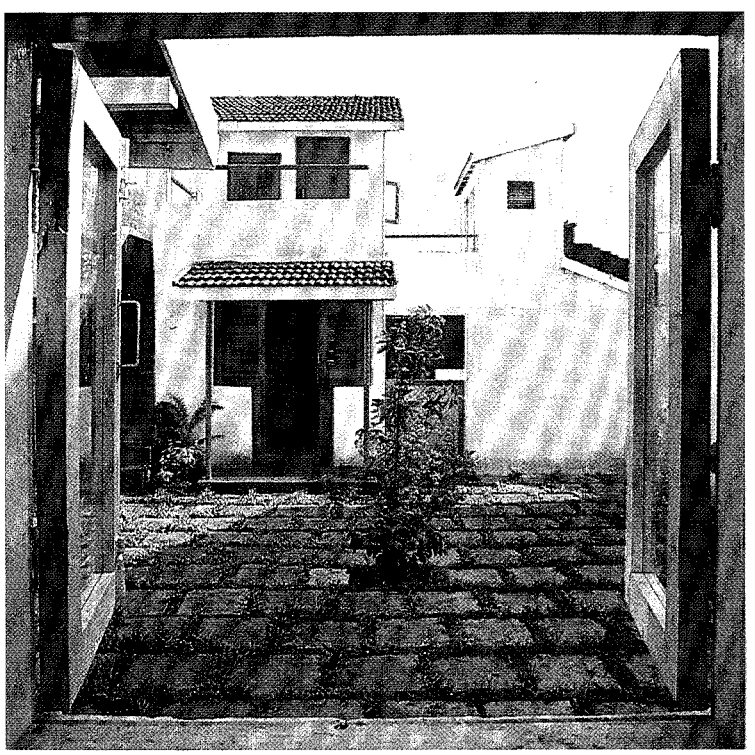

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All drawings courtesy of the architect.

Front Cover: Pencil drawing of the project for Vidhan Bhavan by Suneel Shelar.
Back Cover: Charles Correa, photographed by Jacques Bétant.
Title Page: Belapur Housing, photographed by Joseph St. Anne.
Overleaf double-spread: Cidade de Goa, photographed by Joseph St. Anne.
Endpaper Maps by Shubhrajit Das.

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Acknowledgements

In 1984 *Mimar Books* began its series "Architects in the Third World" by publishing a book on Charles Correa, the Indian architect who had then just been awarded Britain's Royal Gold Medal for Architecture. The publication was timely and well received. Since then we have published two other monographs in the series; meanwhile, the Correa book has been sold out. We could have chosen to reprint the book, but decided instead to substantially revise it and bring it more in line with our subsequent publications.

This completely revised edition thus owes some of its recognition to the style we developed with our later books, as well as to a remark made about the old edition by Sir James Richards who said that it was "more like a magazine than a book in presentation". Taking this to heart, this new edition is both very different and enlarged — and, we feel, much better. We acknowledge our debt to Sir James as well as to Charles Correa who completely supported the editors and authors, had new drawings made, photographs retaken, and added an essay to explain his own personal approaches to architecture. Sherban Cantacuzino's fine essay has also been slightly expanded.

As author, in the re-organisation of the book, I have grouped the projects into four major sections, whereas before the work was presented chronologically. Each of the sections have short introductory texts and trace more effectively the development of the architect's work and philosophy. The project descriptions have been re-written and in framing the material, I dropped about a quarter of the projects and added new and more recent ones, which show new directions in the architect's work.

The chronology of works has been expanded, updated, and made more descriptive. In addition, the biographical and bibliographical portions of the book are now as complete as possible, which should greatly aid the serious scholar of either Indian architecture in general or Correa's in particular.

All the drawings for the book were done in the architect's office and many new ones added. The photographs are the works of several professionals (who are credited on the imprints page) and a number of photographs taken recently for this new edition by Joseph St. Anne add greatly to the efficacy of the presentation of the projects.

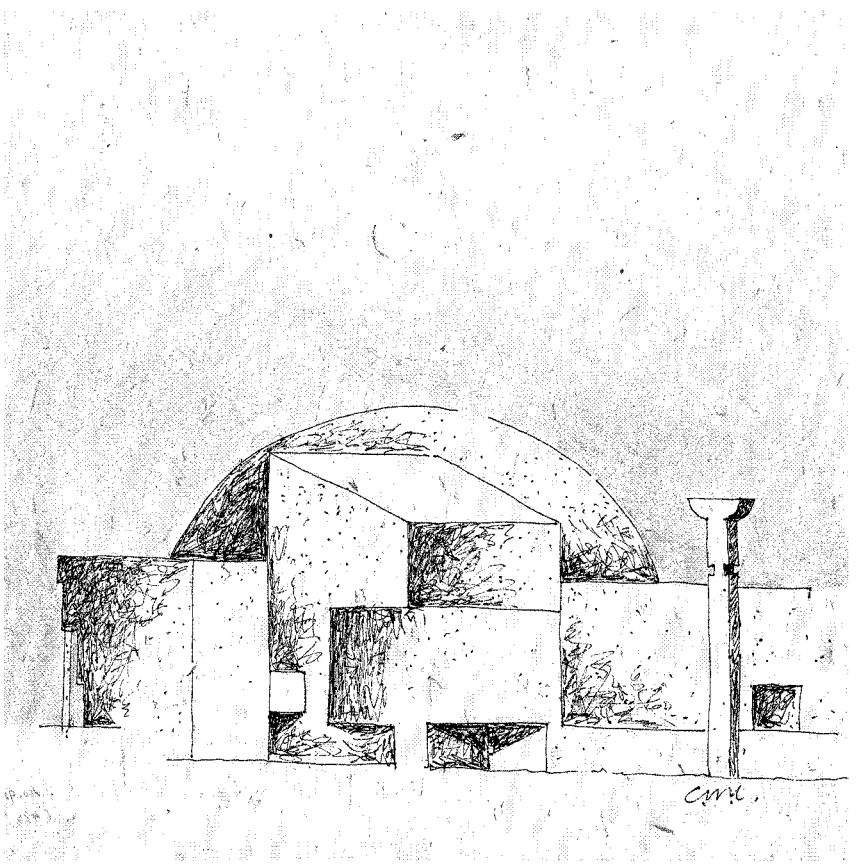
Thanks are due to a number of other people who worked on this edition besides the authors of the texts and the photographers. The editorial help given by Karen Longeteig has been invaluable. Collation and organisation of the material on the projects was done by Chinu Correa, the architect's daughter and an architect in her own right, without whose help this book would not have taken its present shape. Most of the plans and sections have been redrawn by Shubrajit Das. The project coordination by Patricia Theseira was, as usual, exemplary. The designers, Viscom Design Associates, continue to translate the editorial and graphic conceptions into visual terms with elegance and creativity. Pascale Dufieux typed, re-typed and kept track of the several phases of the manuscript.

The readership and critical response in the press, to this series of books has been most rewarding: it is clear that we are filling an apparent gap in architectural publishing.

Charles Correa is receiving the attention he deserves and we are pleased to play a part in bringing his work to international attention.

Hasan-Uddin Khan
Series Editor, Mimar Books.

IDEAS AND BUILDINGS



by Sherban Cantacuzino

Ideas and Buildings

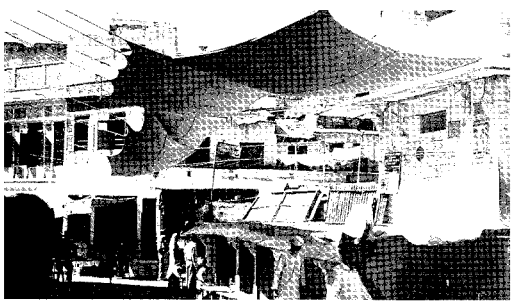
In an answer to the question, are architects in India able to influence change more than architects in the West, Charles Correa said after a lecture in London they were not, but that did not stop them from trying. A friend of his maintained that what was nice about living in a Third World country was being able to take a position and shoot on twenty different problems which are none of one's business. This friend, an Indian, now lived in Switzerland, where he had no opinion on anything, because the Swiss had no problems. In the twenties and thirties architects might well have been wrong in their ideas, but what was wonderful was what they *tried to do*.[1] The story reveals two aspects of the man, the lateral thinker and the pioneer. The architect pioneers of the twenties and thirties in the West, under whose influence Correa grew up, were intent on influencing change, but their method of thought, cast in an analytical and experimental mould, never matched their vision. They would have recognised the guru sitting under a *banyan* tree as a symbol of enlightenment, but they would not have related his presence there to school buildings, or reached wide-ranging conclusions about man's relationship with built form in a hot climate.

Correa's aptitude for epigrammatic statements stems from the early architect pioneers and their manifestos. The content of these statements, however, is entirely of today. They are acceptable to the disenchanted Western mind precisely because they are not manifestos but insights, often of the most startling kind. They are acceptable too, because they reveal a new kind of pioneer who is concerned about people. "To find how, where, and when he can be useful is the only way the architect can stretch the boundaries of his vision beyond the succession of middle and upper income commissions that encapsulate the profession in Asia." Correa can make poetry out of the most prosaic of subjects, only to bring one back to earth with a jolt. Thus under the highly topical and prosaic heading "Energy", he writes: "To cross a desert and enter a house around a courtyard is a pleasure beyond mere photogenic image-making; it is the quality of light, and the ambience of moving air, that forms the essence of our experience. Architecture as a mechanism for dealing with the elements ..." Even in his beautiful interpretation of the Gothic Cathedral he can't resist the bathos. After examining the effect of climate on architecture and concluding that cold climates have produced the closed box, generally to the detriment of architecture, he makes an exception for the Gothic Cathedral. Why, he asks, does this version of the box move one so profoundly. "Perhaps because Gothic architecture deals with light falling from great heights — the same feeling you get in the narrow canyons of the American West, or in the pine forests of Scandinavia. There is something about looking up and seeing light — I think the tilt of your head awakens some primordial instinct. Perhaps it was the fear of Jove hurling down thunderbolts (or it might be just someone hitting you)..."[2]

Though Correa and his practice never imitate the past, it is essential to understand the traditional architecture of India in order to understand their work. It is an architecture of recession, of indoor and outdoor spaces that merge into one another, the use of which is determined by the climate or the seasons, and not by the activity within them. It is architecture of horizontal planes — of roofs and platforms, open colonnades, verandahs and courtyards with fountains. Perhaps because of his American training, Correa has rarely been tempted to import Western ideas into India. Like most architects of his generation he has been influenced by Le Corbusier, but by Le Corbusier's response to the Mediterranean sun with his "great sculptural decisions (the over-hangs, the double-heights), placed facing the elements".[3] In contrast he believes that Le Corbusier's influence in the colder climates has not been beneficial because "these heroic gestures had to withdraw into defensible space, into the mechanically heated (and cooled) interiors of the building".[4] He sees the outcome of this tendency in the new shopping malls and hotels. "In these incredible lobbies, despite the spatial pyrotechnics, the ambience is somewhat artificial, contrived, stillborn. And for a simple reason: they do not connect with the kind of open-to-sky space which could quicken them to life."[5]

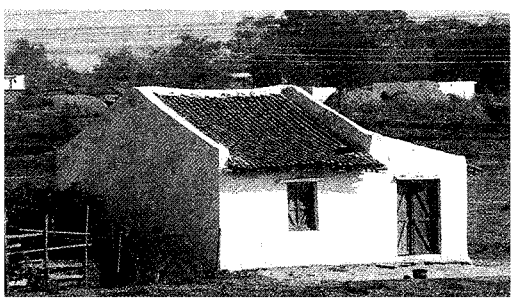
In his essay in this book Correa remarks that in a warm climate people have a very different relationship to built form. He singles out the *chatri*, an overhead canopy and a traditional Indian form, as an example of the minimal protection required by the climate. He makes use of this form in several of his buildings, including what is perhaps his most distinguished early work, the memorial museum of Mahatma Gandhi at Ahmedabad. The unit is a pyramidal tiled roof supported on brick piers. Some units are omitted to form courtyards open to the sky; others with exhibits needing protection are enclosed with panels or louvres. It is an architecture of deep recession and of extreme contrasts of light and shade. "One steps out of the 'box' to find oneself .... in a verandah, from which one moves into a courtyard, and then under a tree, and beyond on to a terrace covered by a bamboo pergola, and then perhaps back into a room and out on to a balcony ..."[6] The Gandhi Memorial Museum is a deeply traditional architecture which wears its past as easily as a woman drapes her sari.

A more obvious use of the *chatri* is in the even earlier Handloom Pavilion for the International Exhibition in Delhi. Here the roof is a wooden structure in the form of inverted



Street in Udaipur.

An up-country bungalow.



A typical village in Madhya Pradesh.

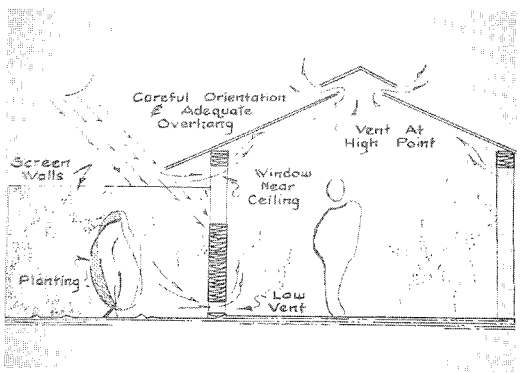
umbrellas covered in translucent handloom cloth. More interesting, however, is the relationship of this light roof structure to the rest of the building. It is a relationship of which architects in cold climates dream, for it entails almost complete separation, the columns supporting the roof structure rising from the floor of the building but otherwise making no contact whatever with the heavy brick and mud substructure. The climate makes it possible to leave a gap above the walls so that the roof appears to float on air.

The substructure of the Handloom Pavilion is a stepped platform contained by walls. Over the platform there is controlled processional movement, and we find many examples in Correa's work of platforms and steps used to generate such movement. It is once again part of the Indian tradition. The monumental Hindu temples of South India, "are experienced not just as a collection of *gopurams* and shrines, but as a pedestrian path (a pilgrimage!) through the sacred spaces that lie between".[7] Correa reminds us that religious ceremonies in Asia have always emphasised movement through open-to-sky spaces and that, while the cathedrals of Europe are all variations of the closed-box model, the great Islamic mosques in Delhi and Lahore are at the other end of the spectrum, consisting mainly of large areas of open space surrounded by just enough built form to make one feel 'inside' a piece of architecture.

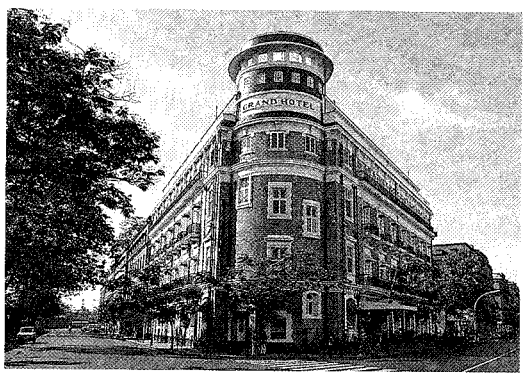
Other examples in Correa's work of the platform theme are the Kasturba Samadhi in Poona, the unbuilt India Pavilion for Expo '70 at Osaka and the Crafts Museum in Delhi. In all these the principle of the *chatri* is jettisoned and instead the architecture becomes that of a built hill of steps and platforms, which are cut open to admit light to the levels below. In the Kasturba Samadhi, which is in the open countryside, Correa achieves a topographical architecture in which the built form of horizontal planes and long lines of seats and parapets plays a truly complementary part to the landscape. Movement, too, is here majestically portrayed in a long earth ramp which leads to the terrace over the museum and to a commanding view of the *samadhi* itself.

Topographical form is also found in the Kovalam Beach Resort at Kerala, where the accommodation is built into the hill slopes and the buildings themselves take on the shape of the hill. Every room has its own terrace cut into the artificial hill and open to the sky. Indeed central to all Correa's work is the theme of what he calls open-to-sky space. It has a number of variations but it is nearly always present. In the Tara Apartments at Delhi the terraces project, because in the hot, dry climate of North India deep-sky radiation makes such open terraces the coolest place to sleep out on warm summer nights. In Bombay, on the other hand, the high humidity, which causes dew to fall overnight, makes it necessary to have cover, hence the corner terraces of the Kanchanjunga Apartments, recessed within the building, but 6 metres high in order to retain a feeling of openness. In his low-income housing in New Bombay Correa uses open-to-sky space as a trade-off against the cost of producing equivalent covered space, for under Indian conditions courtyards have a usability coefficient of about half that of a room and verandahs about three-quarters.

An intelligent response to climate lies at the root of all Correa's work. The response often demonstrates a subtle and sophisticated understanding of climatic problems which is derived, one suspects, mainly from observation, since the published scientific literature on the subject is patchy, to say the least. Sometimes this observation is of an historical kind. In the administrative offices of the new State Assembly for the Government of Madhya Pradesh at Bhopal he reverts to an old colonial tradition of verandahs overlooking courtyards as the means of circulation and access to the offices (making waiting to meet a government official a pleasant experience), instead of the standard double-loaded internal corridor. More often it is observation in the empirical sense — the way the section of a building may control air movements, for instance. In the Kanchanjunga Apartments and in the Previ Project for Lima, Peru (1969–73) each unit is shaped so



Shading the elements from the sun.



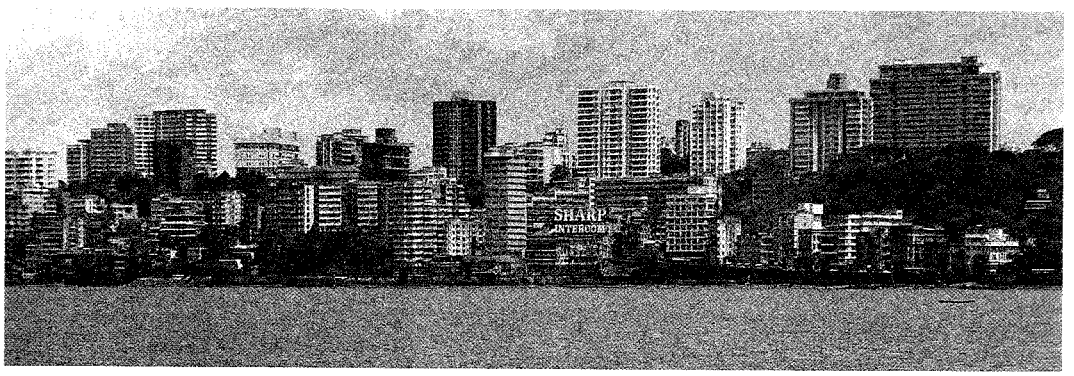
The Ballard Estate, Bombay, built in the 1920s.

Tata Palace, Bombay.

that the prevailing breeze, which enters at one end, is drawn through the house with the help of double-height volumes. In the Previ Project this draft is increased by means of a louvred air-scoop over the double-height volume; and in the Tube Housing at Ahmedabad (1961–62) each house is in addition given a sloping ceiling to help the hot air rise and escape through a vent at the top. In the Tube Housing and in several other examples doors are always omitted (visual privacy being achieved by the use of different levels) to avoid obstructing the air movement. Yet another example of the section's controlling the climate is the design for the Cablenagar Township at Kota in Rajasthan (1967), of which the Parekh House at Ahmedabad (1966–68) is the built model. Here the section is stepped, so reducing to a minimum the amount of roof surface which is exposed to the sun.

If in these examples Correa is seen to turn so mundane a factor as the movement of air to his advantage by creating spatial variety and contrast within his buildings, he is also capable to emulating Le Corbusier in "his great sculptural decisions (the overhangs, the double-heights ...)". Several works designed by his practice make use of a single giant umbrella which protects the building set within it, and defines and gives shade to the outdoor spaces below it. It is a kind of urban theatre — a stage for the whole city at city scale. The New India Centre, designed for Lutyens' Connaught Circle in Delhi, is an all-glass office block 45 metres high, which is framed by a monumental "proscenium arch" and protected by a pergola at the top. More energy-conscious is the administrative complex for the Electronics Corporation of India (ECIL) at Hyderabad (1965–68) in which Correa practices what he preaches. "In a poor country like India," he has written, "we simply cannot afford to squander the kind of resources required to air-condition a glass tower under a tropical sun. And this, of course, is an advantage, for it means that the building itself must, through its very form, create the 'controls' the user needs."[8] The building creates its own micro-climate without air-conditioning. It consists of a number of three-storey office units, grouped round a courtyard and sheltered by a single roof on giant columns which is partly slatted and partly covered with a sheet of water reflecting the sunlight back into the sky. The amount of solid surface which absorbs heat and transmits it to the space below is therefore reduced to a minimum, the spaces themselves consisting of garden courts and balconies as well as indoor rooms. One might add that this kind of protection need not be solely in the vertical dimension, and Correa shows, in his analysis of colonial bungalows, how the verandah and utility rooms gave the internal living and sleeping areas two lines of defence, and how this principle could be applied to a modern apartment block. Such a protective belt also has important architectural implications, since it implies the recession and the deep shadow which is every architect's dream and which is so much more difficult to achieve in cold climates.

It will be apparent from what has already been said that for Correa the house is part of the much bigger problem of housing and, in Correa's particular case, of housing in the Third World. In addition to the projects already mentioned and among a good many others, he has designed and built large housing schemes for the Life Insurance Corporation of India in Bombay (1969–72) and in Bangalore (1972–74). In a suburb of Bombay a 60-acre site was developed with terraced apartments up to five-storeys high, but in Bangalore row houses, providing accommodation which was more appropriate to the local climate and life-style, were preferred. In this context it is interesting to note that for the previously cited low-income housing at Ahmedabad the brief required four-storey walk-up apartments, but row houses to the same density and with larger living spaces were in fact provided. Correa has indeed pointed out repeatedly the need to



A view across the water to the apartments on Malabar Hill, one of Bombay's high income areas.

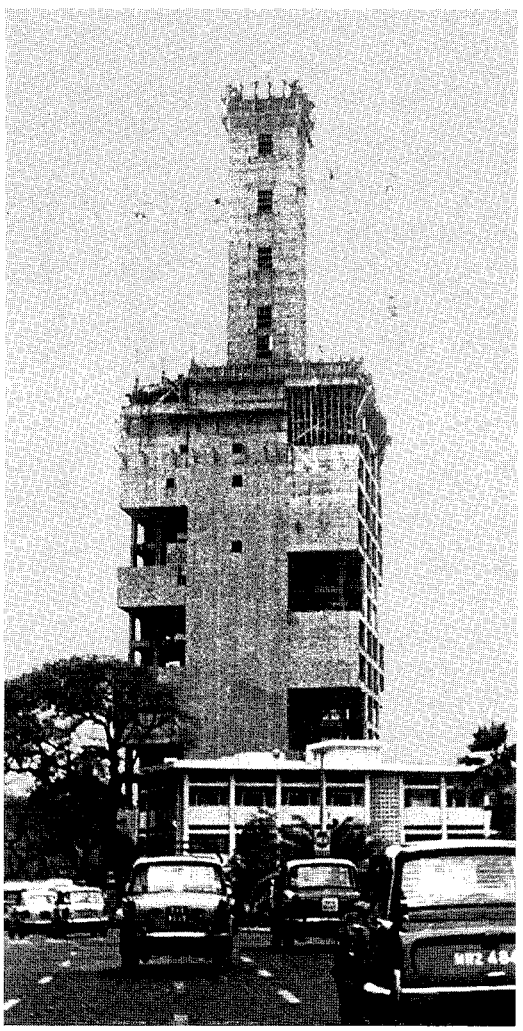
identify the most economic and efficient patterns of housing. These, he maintains, turn out to be mostly low-rise high-density configurations in Third World cities. They make extensive use of terraces, verandahs and courtyards, for in a warm climate space itself is a resource. He identifies a hierarchy of spaces, from the enclosed privacy of the house itself, through the threshold of the house where contact is established with the outside world, to the communal water tap and *maidan* of the whole city. He comes to the all-important conclusion that this is the kind of habitat which people have always built, and can continue to build, for themselves — that it is the people, in other words, who are the greatest resource of all. "Furthermore," he continues, "it is of decisive relevance to employment. For while money invested in high-rise steel and concrete buildings goes into the hands of the few contracts who can build such structures and the banks which can finance them, this low-rise pattern of housing is built by small masons and contractors — which of course generates a far greater number of jobs exactly where they should be generated: in the bazaar sector of the economy, where the rural migrants are looking for work."[9]

At Belapur, a housing sector of New Bombay, Correa has built cluster housing on the banks of a small stream, which observes the hierarchy of spaces to which reference has already been made. The basic unit is a cluster of seven houses grouped around a small courtyard. Three of these clusters (21 houses) are then arranged around a larger open space. Next comes the community space, and finally the neighbourhood space where the primary school and other communal services are located. The houses are designed so that they can be enlarged when required, each house being free-standing with its own independent load-bearing walls, in some of which for the sake of privacy, however, window openings are proscribed. Putting into practice his principle of equity, Correa has achieved a variation in plot size which is quite small considering the wide range of income groups for which the houses are designed. House plans are merely indicative and construction is traditional and of the simplest kind — rendered brick walls, timber floor and roof structures, and pitched roofs covered with tiles — so that it can be undertaken by local masons and *mistris*, with the help of the people themselves. The result is like a scaled-down version of Kotachi Wadi in Bombay, a charming residential quarter of two-storey houses with wooden verandahs and outside staircases built in the 19th century by East Indians and still inhabited by them. At Belapur, however, the absence of verandahs and the relatively small roof projections leave the walls of the houses rather more exposed to the sun.

Just as Correa sees the house as part of the larger problem of housing, so he regards housing as an integral part of town-planning. He has written concisely but eloquently about New Bombay, (pages 46–51) a city which he among others conceived, and for which he was Chief Architect from 1971 to 1974. From 1975 to 1978 he was also Consulting Architect to the Government of Karnataka, working on the structural plan for the city of Bangalore. In all his thinking about town-planning he quickly gets down to the fundamentals. The magnitude of the migration to the cities and, in the case of Bombay, with its industrial and financial centre in the southernmost tip of the island, its strangulating effect; the consequent need to increase Bombay's holding capacity by opening up new growth centres across the harbour; public ownership of land; low-rise high-density housing on a linear pattern; and a mass transport system to get people to their place of work in the shortest time possible. The intention is that the new growth centres across the harbour should re-structure the whole city, so that the existing north-south linear structure of the island would become a circular poly-centred one. The idea of New Bombay arose in 1964 when the population was about four million. Today it is nine million and by the year 2000 it will be 15 million. Money and the politicians prefer to extend Old Bombay by building higher, so that New Bombay has not progressed as much as it might have. In addition to the two-part holding action which Correa advocates during the next two decades (page 46), a holding action which involves stimulating the economy of existing villages, small towns and middle-size towns, he suggests elsewhere that these should be "new centres of growth, neither rural nor urban, but kinds of quasi-rural areas in which you have

densities high enough to have a bus service and a school system, but low enough so that people can keep a buffalo and therefore have another source of income".[10] In particular he sees a role for the Third World architect in formulating the programme and design for such centres. The new National Commission on Urbanisation, of which he is the Chairman, is now actively promoting this idea.

Correa has been questioned on a number of occasions about the propriety of building tower blocks in a country like India. He himself has been criticised for his Kanchanjunga Apartments in Bombay, which is just such a tower block, 28 storeys high. His reply is engagingly frank and revealing, and relates to fundamental planning issues. "Tall buildings," he says, "reflect high land values ... to the developer, the optimal built form is a decisive trade-off between the cost of land and the cost of construction. As a building goes higher, the construction component goes up, but the land component diminishes. But if, instead of looking at just a particular site, the developer is responsible for the whole neighbourhood, then this point of trade-off would be different; and if here we look at the city as a whole, then the point of trade-off would change again — because then land would have to be provided not only for that particular building but for all the schools and open spaces that go with it. Unfortunately we live in a society where decisions are made by people looking only at the smallest context: i.e., the individual site. They are perfectly logical in what they do, but the result is myopic. It was only when I worked on New Bombay that I began to see that one had to have an overview of the whole thing to understand what should be done".[11] For Correa architecture, and by implication, town-planning can be agents of change, indeed must be in a place like India, if great disasters are to be averted. This is not necessarily a matter of inventing new ideas,

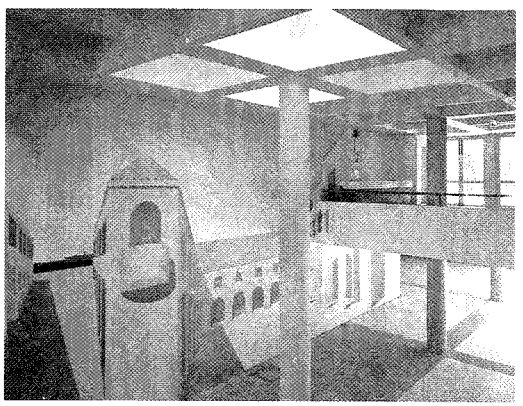


Kanchanjunga apartments in Bombay, under construction.

and he gives Mao Zedong and Gandhi as examples of people who did not mind whether an idea was old or new. What mattered was whether it could be made to work in the context of their own country. Mao's Communism derives from a German Jew who lived a century earlier and much of Gandhi's stems from Emerson and Thoreau. "The genius of both these men," Correa concludes, "was that they could stitch these ideas into an old social fabric and produce a seamless wonder. New ideas making the past work. (And vice versa!)"[12]

Although Correa has lived and worked most of his life in Bombay, he is an Indian from Goa, that small but rich country where a Latin European culture stands superimposed on an Oriental one, and where people today, according to the author of a guide book on Goa, are never in a hurry and always ready to give their time to a stranger,[13] a characteristic which certainly applies to him. He has recently built a hotel there in the shape of a small town and completed the auditorium of the Kala Akademi, both of which reveal his natural wit and high-spirited sense of humour, as well as a more unexpected fascination with decoration as a means of extending and deepening a chosen imagery. In the case of the hotel, the Cidade de Goa, the reality is itself unreal and insubstantial like a stage set, an ephemeral quality which is not inappropriate, it could be argued, to its ephemeral function. The flatness of smooth, painted wall planes is emphasised by bands of contrasting colours to openings and edges. The extension to this reality in the form of three figures in the round, monochrome and ghost-like, of Vasco da Gama and his friends, and of *trompe l'oeil* wall paintings of an arcaded street and various openings, in one of which stands the dark silhouette of a man, becomes surreal — straight out of a painting by De Chirico. This is not so much illusion in the Barroque sense — the actual and the virtual are both too unreal for illusion to work — as an extension of the architecture through decoration.

Brian Brace Taylor has suggested perceptively that Correa's use of paint here derives from the classic relationship of fresco to built form, going back to Florence or to Ajanta. "The walls, forming open and closed spaces," he writes, "have been used as a support, a series of virtual screens, for two-dimensional pictorial statements which counter-point and balance the reality of the



Illusion and reality, Kala Akademi, Goa.

Crafts Museum, Delhi.

Gymkhana Bar, Bombay.

actual three-dimensional sequence created by the architecture itself."[14] Ambiguities abound. Is it a city or just the image of a city? Is the person standing there real or an illusion? And why should illusion not possess the vibrant intensity of the real thing — poetic rather than scientific truth?

In the case of the Kala Akademi auditorium the side walls are divided into bays by painted pilasters, between which are *trompe l'oeil* boxes with people in them. But these are even less illusionistic than the hotel *trompe l'oeil*. They are, first of all, in black and white, and have a linear quality like drawings. The academic technique of hatching and crosshatching shadow recalls David Hockney's sets for The Rake's Progress but, unlike Hockney, the Goan artist Mario de Miranda who carried out this work, uses the technique with irony. The people in the boxes, moreover, are caricatures of real people. It may be putting too serious an interpretation on the work, but Miranda and Correa seem to be saying "this is what theatre used to be like and here are people of today who would like it to remain as it always has been. But things aren't actually like this, and we don't want those people in the boxes to be real". The purpose of caricature, after all, is to ridicule.

In the Gymkhana Bar in Bombay there is straight illusion and the wall is painted to look like windows through which a panoramic view of a cricket match in full swing on the *maidan*, actually there on the other side of the wall, can be enjoyed. The illusion of the real thing as well as the real thing are both there, one behind the other.

"Quality in architecture and planning," Correa has said, "is the result of understanding constraints, not of ignoring, or avoiding them. How well does a building fit into its site? How intelligently does it deal with the hazards of climate? What materials and technology does it use — and how appropriate are they in terms of cost and local availability? What is the scale and ambience of the whole environment — and is it in consonance with the sensibilities of the people who live there?"[15] These vital questions are a far cry from modern architecture as we have known it, and it is a measure of their recognition that Correa has been awarded the Padma Shri by the President of India, and in 1984 the Royal Gold Medal by Queen Elizabeth II.

Le Corbusier and Louis Kahn were universal architects, able to absorb a people's culture and tradition to an extraordinary degree, and above all able to give back what they absorbed in the form of magnificent and appropriate architecture. Correa thinks India was lucky to get Le Corbusier and Kahn because they believed in architecture. Correa himself is essentially an Indian architect who is achieving an international reputation as much through his ideas as through his architecture.

Correa's interest in planning and housing are symptomatic of his belief in the process rather than in the product of architecture. He is above all a strategist, always seeking to establish the right structure, ask the right questions, create conditions in which the right things can happen. "The problem of housing the vast majority of urban people," he states, "is not one of finding miracle building materials or construction technologies; it is primarily a matter of density, of *re-establishing land-use allocations.*"[16] This strategy gets to the root of the matter because it is an essential step in achieving a more equitable distribution of resources, and because it is not a drain, like miracle building materials and construction technologies, on the economy of a country.

This is not to say that Correa is uninterested in the product — in the specific building which is the result of the process. His interest, however, always appears to be focused on the prototypical, on a particular solution as a step in the development of an idea, and on the way the lessons learnt from

a particular solution can be applied to a general problem. This explains his ability to tackle a whole range of issues at almost any scale. Even a small job like the beach houses at Mandhwa, or a matter of detail like his ingenious solution for the house servants who sleep on the pavements of Bombay may illustrate a principle or form part of a wider argument with implications at city or regional scale. And even his visually most seductive buildings, like the memorial museum of Mahatma Gandhi at Ahmedabad, or the Kala Akademi at Panaji in Goa, are strongly conceptual — conceived in the mind and in the eye, an idea as much as an image, albeit a memorable one.

The same will surely be true of the State Assembly for the Government of Madhya Pradesh, which is now under construction in the state capital Bhopal. The site, near a fine group of Muslim monuments and on the crest of a hill, has inspired a mighty plan of nine halls and courtyards contained within a circular wall, above which a variety of domes and other roof forms will emerge. Correa likens it to a city. At one level it is the mandala, at another the deeply mythical Round City of Baghdad which may have provided the source. Essentially inward-turning, this "city" is the complete reverse of Kahn's sculptured monument at Dhaka — a series of highly articulated cylinders and cubes, grouped symmetrically around the circular cocoon of the assembly chamber. Despite the overall circular form, Correa's solution is a loose fit and essentially anti-monumental.

If the Third World context in which Correa works effectively denies him the possibility of indulging in the high-technology architecture of a Norman Foster or in the finely wrought and personal artefacts of a James Stirling — in architecture as high art and in product as an end in itself — the traditionalist approach which re-

Self-help housing in New Bombay.

interprets the past as pastiche or collage is equally alien to him. An architect is Mediterranean not because he uses tiled roofs but because the spirit of the Mediterranean runs in his blood. Aalto and Le Corbusier were both inspired by the past, but they never imitated it or borrowed from it directly in the way the fashionable post-modernists do. Correa's admiration for Hassan Fathy in no way blinds him to the dangers of reviving the past or of clinging to tradition. "We must," he declares, "understand our past well enough to value it — and yet also well enough to know why (and how) it must be changed. Architecture is not just a reinforcement of existing values — social, political, economic. On the contrary. It should open new doors — to new aspirations."[17] He admonishes the American post-modernists for looking at Palladio when they should be emulating Frank Lloyd Wright who "invented the future" with his Usonian house, of which so much of American suburbia — the ranch house, the split-level house, etc — is the consequence.

An artist, of course, is remembered by his art, not by his ideas. An architect must build beautiful and memorable buildings. But there are perhaps two kinds of beauty in architecture, an inner and an outer beauty. Inner beauty can come from something as intangible as an idea, from the organisation behind the plan and section, from the inherent harmony of the whole. Inner beauty tends to be hidden from the uninitiated. It is not easily perceived except by those who can understand three-dimensional relationships. Outer beauty, on the other hand, is superficial and has to do with decoration and with the tactile qualities of the surface. It encompasses exactly those visual qualities which can endear a building to the ordinary person. The Modern Movement in architecture at its best has been strong in the former at the expense of the latter. Correa's architecture, too, is consistently strong in inner beauty — which is perhaps just as well, for in a country like India, the tasks are so gigantic, the sense of urgency so great, that the few who understand the way forward must make certain that they do the first things first.

[1] After the 1983 Thomas Cubitt Lecture, 'A Place in the Sun', delivered by Charles Correa on 31 January and published in the *Journal of the Royal Society of Arts*, May 1983.

[2] Op. cit. 1983 Thomas Cubitt Lecture.

[3] Op. cit. 1983 Thomas Cubitt Lecture.

[4] Op. cit. 1983 Thomas Cubitt Lecture.

[5] Op. cit. 1983 Thomas Cubitt Lecture.

[6] 'Open-to-sky space' by Charles Correa, *Mimar* 5, 1982.

[7] Op. cit. 1983 Thomas Cubitt Lecture.

[8] Op. cit. 1983 Thomas Cubitt Lecture.

[9] Op. cit. 1983 Thomas Cubitt Lecture.

[10] In an answer to a question after the 1983 Thomas Cubitt Lecture.

[11] In an answer to a question after the 1983 Thomas Cubitt Lecture.

[12] Op cit. 1983 Thomas Cubitt Lecture.

[13] *Goa* by J.M. Richards, London, 1982.

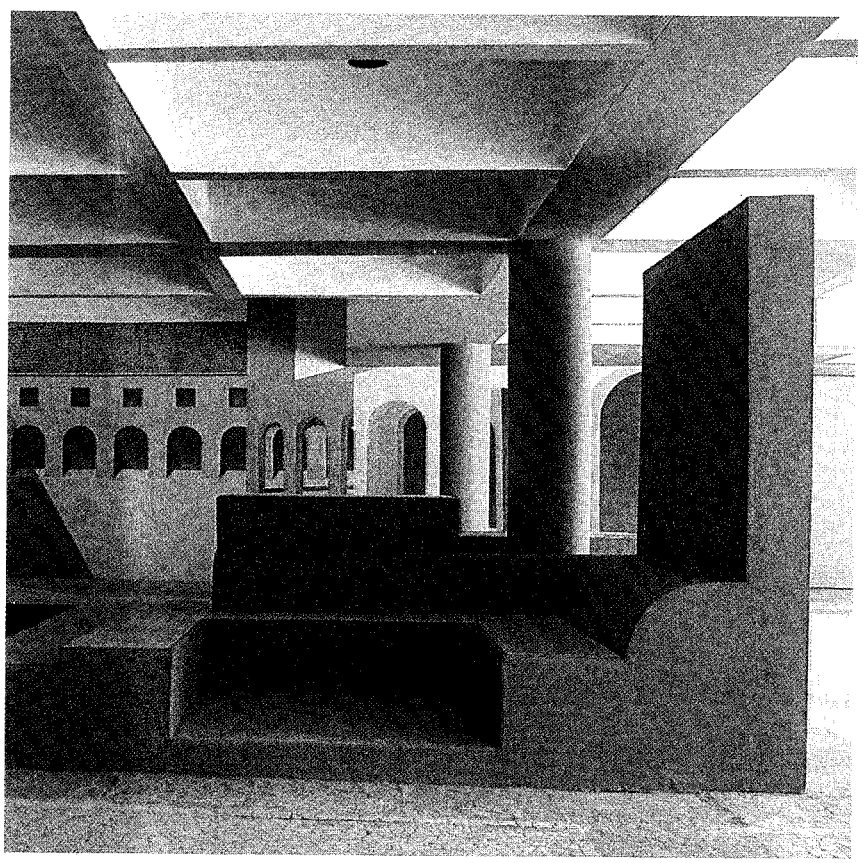
[14] "Correa's Cidade de Goa" by Brian Brace Taylor, *Mimar* 5, 1982.

[15] Correa Consultants (brochure), Bombay.

[16] *The New Landscape* by Charles Correa. The Book Society of India. 1985.

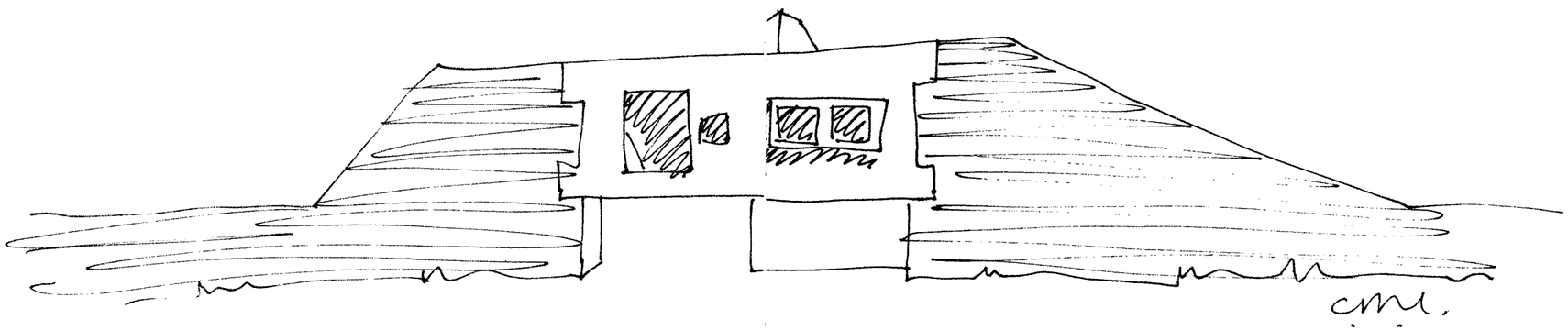
[17] *The New Landscape*. op. cit.

SELECTED WORKS



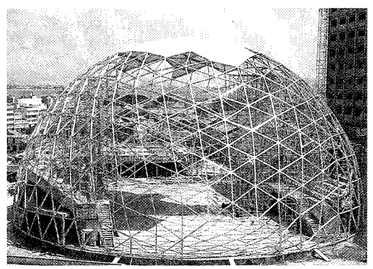
by Hasan-Uddin Khan

Charles Correa has an oeuvre of over one hundred and twenty projects. From them, twenty-seven works have been selected to illustrate both the development of his ideas as an architect and the diversity of his work. The projects are grouped in four major sections — Early Work, Housing and Urban Planning, Resort Hotels, and Public Buildings and within each section are presented chronologically.

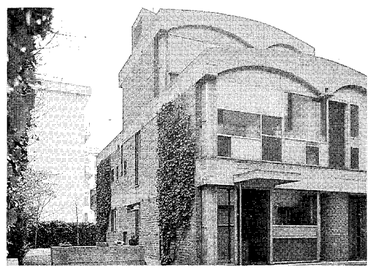


The use of semi-covered spaces, the *chatri* (umbrella), the internal street with setbacks, the idea of a maze or puzzle with a sense of progression through it, the use of platforms on which events take place, and a concern for appropriate materials and technology characterise Correa's early work.

During this first period, which ran some ten years from his first commission in 1958, the architect explored some of the ideas he had had as a student at Michigan and the Massachusetts Institute of Technology. At Michigan, the two professors who influenced him the most were Walter Sanders, who had come from the East Coast as Chairman of the Department, and Buckminster Fuller, who was Visiting Critic. Correa recalls: "I'd never heard anyone like Bucky before — an incredible outpouring of ideas and inventions. I remember a project we did with him: a spinning dome for the North pole, based on those contraptions used on ship's vents. The ocean winds spin the vent, extracting air from the exhaust pipes. Bucky thought we could do the same with the arctic winds. Our class made a huge working model using an electric motor, a bicycle wheel and long aluminium blades. This dervish was turned on and everyone threw rice at it (less messy than water) which promptly went right through the blades onto the floor! Later, at MIT, Bucky was again Visiting Critic and our class designed a tetrahedron truss out of reinforced cardboard. I remember both these projects very vividly. Bucky remained a close friend and a source of considerable wonder throughout his life."[1]



Buckminster Fuller's tetrahedron truss.



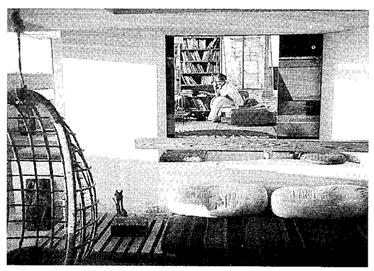
Le Corbusier's Jaoul House, Paris, exterior.

This sense of curiosity and experimentation stayed with Correa, and the sense of adventure played a significant role in his later building designs. The broadening of Correa's outlook from his Indian roots was furthered at MIT where he did his Master's degree in architecture.

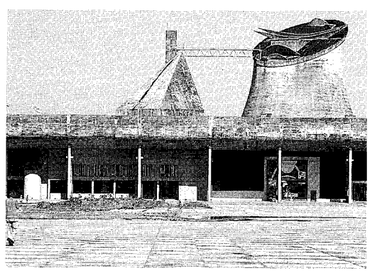
There, Gyorgy Kepes ran a seminar which covered a wide range of discussions from Renaissance painting, Bauhaus functionalism to Zen metaphysics. "It was the first time I was encouraged to argue and debate and it had a big effect on me — in fact I've never recovered from it" said Correa. It appears that Lawrence Anderson, Steen Eiler Rasmussen and Kevin Lynch were influential teachers. Kevin Lynch was then in the process of developing his themes for *Image of the City*[2] which triggered Correa's interest in urban issues.

At the end of 1955 Correa returned to India and was made a partner in G.M. Bhuta and Associates where he worked until June 1958 when he set up his own practice. His first project was the Handloom Pavilion for an exhibition in Delhi, followed by the Gandhi Smarak Sangrahalaya, the size of which made his new office viable.

His early concern with expressing *single* driving issues and ideas through his works is something that remained with him for some twenty years. He believes that architecture should grow out of a strong conceptual idea and be expressed directly, elegantly and succintly. He had not yet discovered the world of Corbusier, but Louis Kahn's ideas on kinetic, incremental built form resounded with his own makeup. On the other hand, Mies Van der Rohe never interested him. "He always seemed too cold. Later, I realised why: his buildings never use the sky. They just end: chop! So they lack emotional wallop. In contrast, Mughal domes make beautiful Yin-Yang interlocks with the sky. And Corbusier understood this."[3] This juxtaposition of ideas — the Zen and the Mughal — is a good illustration of Correa who, though very Indian in nature, draws inspiration from many cross-cultural sources.



Sonmarg Apartments, Bombay, interior.



Le Corbusier, Chandigarh, Court-House "cannon".

The most evident influence on Correa, and indeed on modern Indian architecture, is Le Corbusier. Correa shares this with other Indian architects of his generation and discussed Corbusier and Chandigarh with fellow architects Achyut Kandvinde, Balkrishna Doshi, Shivnath Prasad and others. It all started when he was on his way back to Bombay in 1955 when he saw the Jaoul House in Paris under construction. "I was absolutely knocked out. It was a whole new world way beyond anything being taught in America at that time. Then I saw Chandigarh and his buildings in Ahmedabad. They seemed to be the only way to build. When you got back to your own office you wanted to make everything out of exposed concrete!"[4] Not surprisingly, therefore, Correa's work during this period pursued the use of exposed concrete and strongly-influenced Corbusian forms such as the top light "cannon", in works such as the University Administrative Office (1960), the Ramkrishna house (1964) and the later Salvacao Church (1977).

Even beyond Le Corbusier's visual language or form-making, that architect's attitudes such as the intensity to which he took a project, where compromise was unacceptable, and his somewhat confrontationalist relations with society, formed many of Correa's professional orientations — attitudes he only gradually lost over the years. As he admits: "In retrospect Corbusier's forms influenced all of us — not only in India but all over the world — far too much. Corbusier's intensity on the other hand had nothing to do with his particular vocabulary: one finds the same intensity in Mackintosh, Palladio, Stirling and Fathy in, of course, quite different ways. But perhaps the most important of all is what Jencks called the "heroic" attitudes of Corbusier: even if some of it was unnecessary, or was self-conscious posturing, it was of crucial importance to young architects like us to have such an example. Corbusier made architecture a serious, sacred enterprise — a far cry indeed from the flippant, floppy attitude so fashionable today."[5]

Correa's debt to Le Corbusier is one he acknowledges, but one with which on occasion he feels uncomfortable in trying to project his own distinctive architectural imagery. This uneasy relationship continues well into the 1970s by which point it is a dress he wears and changes with confidence to the point where he writes, "I used to think that India was lucky to get Corbusier, but looking back on it I think that Corbusier was lucky to get India."[6]

It is worth noting that young architects like Correa inspired by Le Corbusier and others were lucky to be supported by enlightened clients such as the Sarabhai's who encouraged them and gave them a great deal of scope for experimentation. Correa acknowledges not only his own debt to these patrons but also emphasises the important role they played in the development of a new contemporary Indian architecture.

[1] Correa in a letter to the author dated 6 March, 1986.
[2] Lynch, Kevin: *Image of the City*.
[3] Correa in a conversation in Gouvieux, France, 1982.
[4] Correa in a letter to the author dated 6 March, 1986.
[5] ibid.
[6] Correa in a seminar discussion, held by the Aga Khan Award for Architecture, Amman, May, 1980.

Gandhi Smarak Sangrahalaya
Sabarmati Ashram, Ahmedabad
1958–63

Mahatma Gandhi lived at the ashram on the bank of the River Sabarmati between 1917 and 1930. It is from here that he commenced his historic march to Dandi — a milestone in his campaign of civil disobedience which eventually led to Indian independence.

Correa was asked to design a memorial museum and study centre in 1958 to house a treasure of some 30,000 letters written to and by Gandhi (some on microfilm), photographs and documents including several hundred volumes edited by his secretary Mahadev Desai.

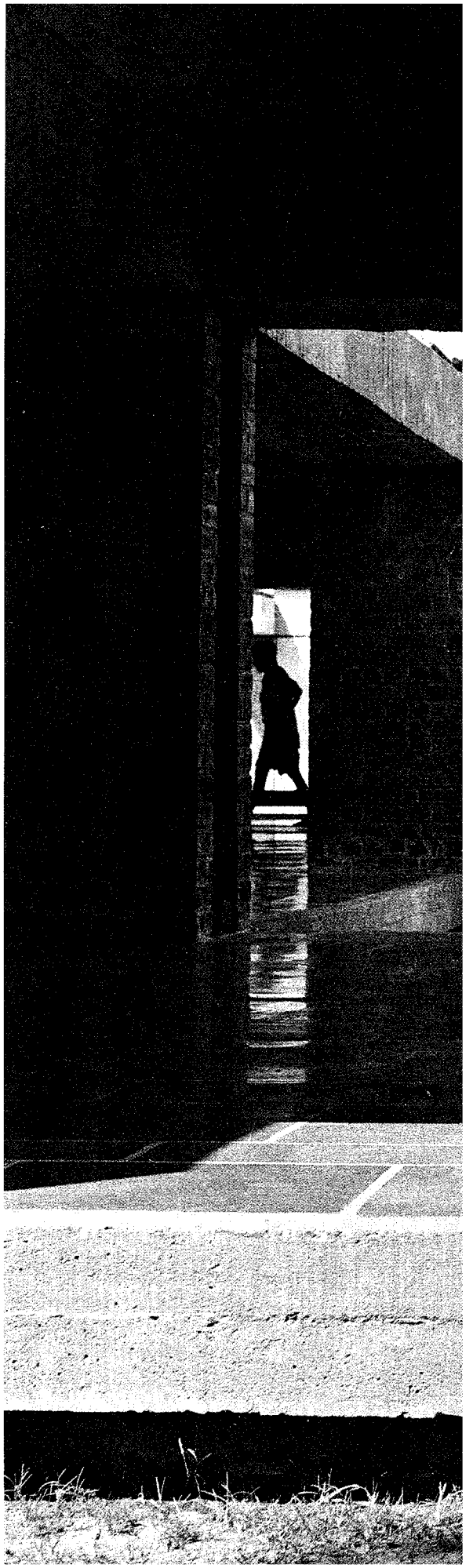
The collection continues to be added to and is the major repository of memorabalia on Gandhi. The commission was the architect's first important work in private practice.

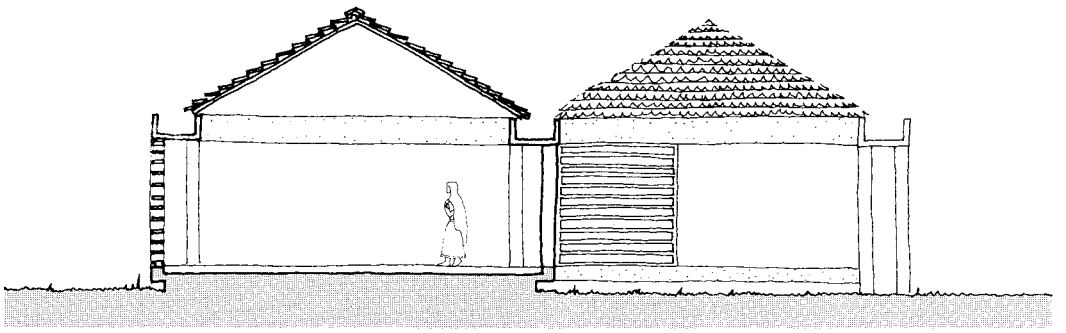
In order to reflect the simplicity of Gandhi's life and the incremental nature of a living institution the architect used modular units 6 metres × 6 metres of reinforced cement concrete connecting spaces, both open and covered, allowing for eventual expansion.

The modular simplicity of the structure is continued in the use of basic materials: stone floors, brick walls, wooden doors and louvred windows devoid of glass, and tiled roofs. The units are grouped in a consciously asymmetric manner to be analogous to the Indian village with its pathways and seemingly randomly placed buildings and its meeting points; in this instance the central water court. The initial construction consisted of 51 modular units. Some of the units are enclosed by walls; the exhibition spaces so created counterpointed by areas for rest where the visitor can sit and meditate. Since its completion the Sangrahalaya was inaugurated by Jawaharlal Nehru in 1963 and the units have been added to, extending the existing pattern.

In this early work Correa demonstrates the uncompromising execution of an idea as a powerful statement of form — an approach found in many of his works such as the ECIL Office Complex and the later Kanchanjunga apartments — where single overriding concepts become the major organising element of the architecture.

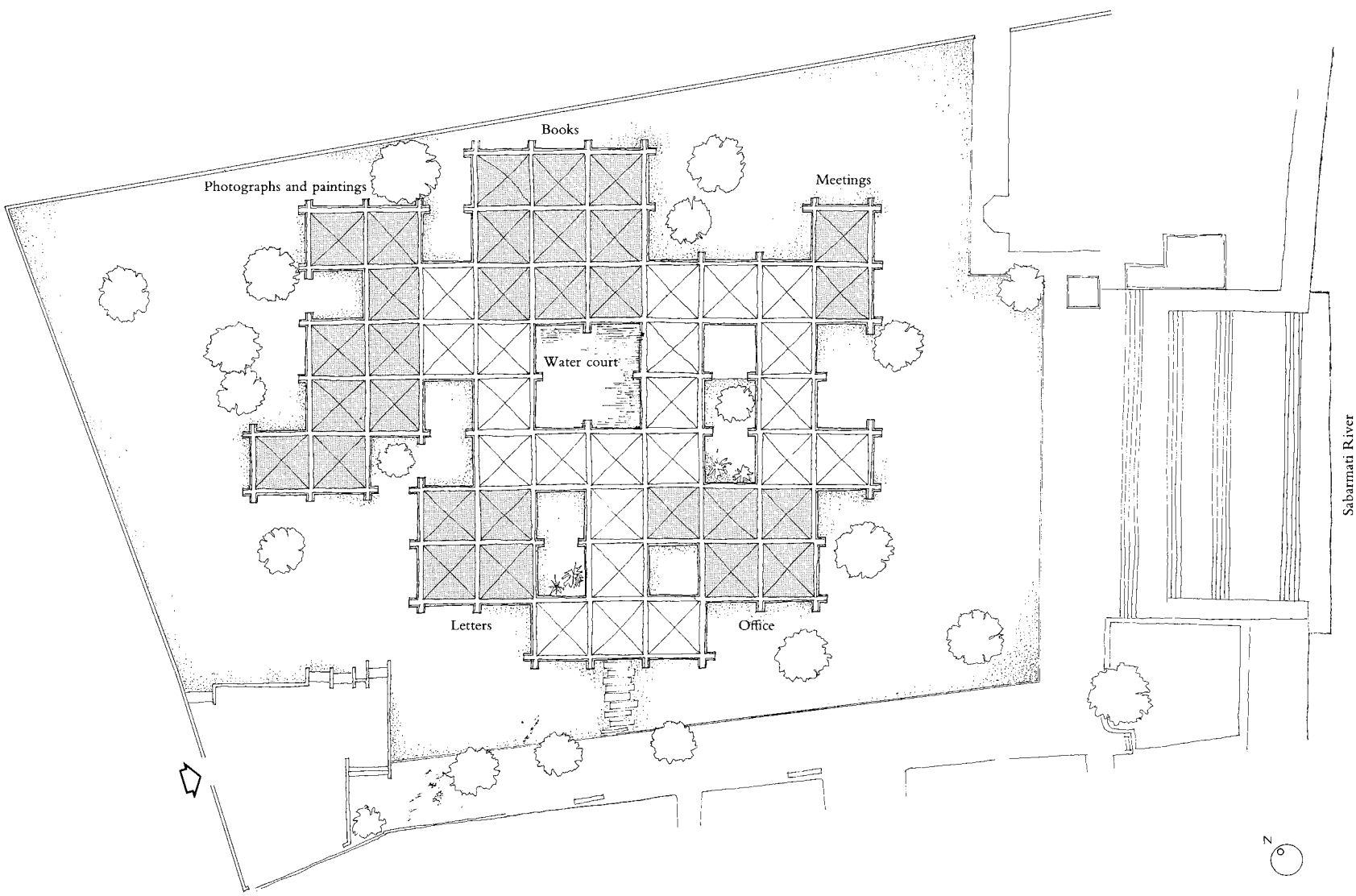
Gandhiji's possessions on display.
Right: The entrance courtyard to the ashram.





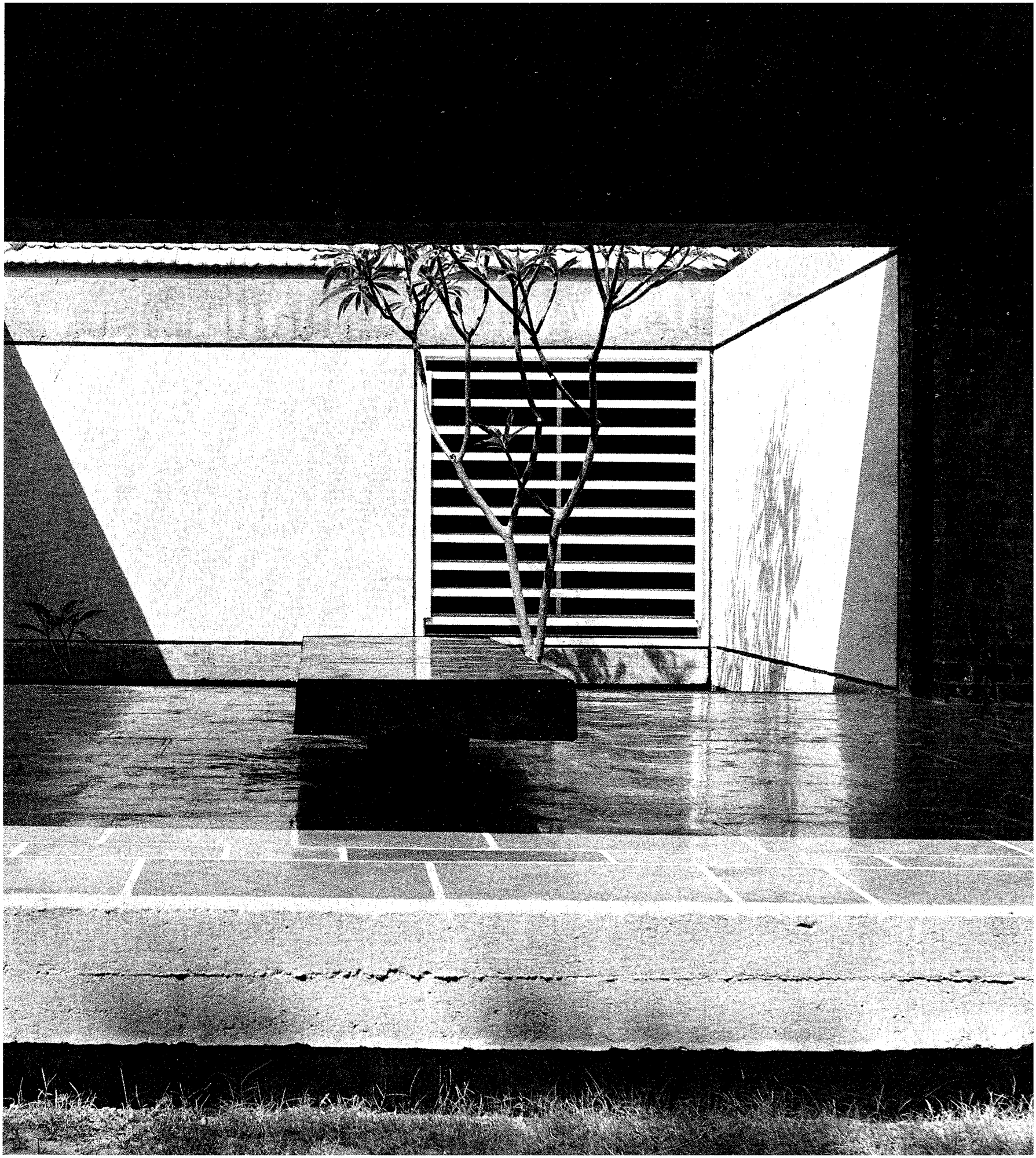
Section-elevation, modular units.

10 ft
3 m

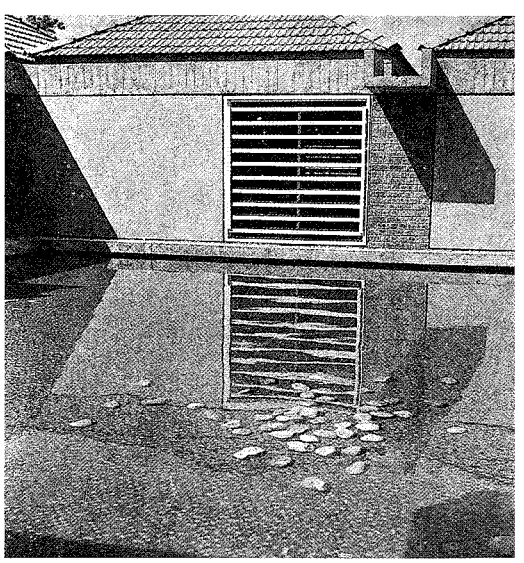


Roof plan.

50 ft
15 m



Open modular units around the water court.



Enclosed space overlooking the water court.
Overleaf: Shaded areas for meditation.

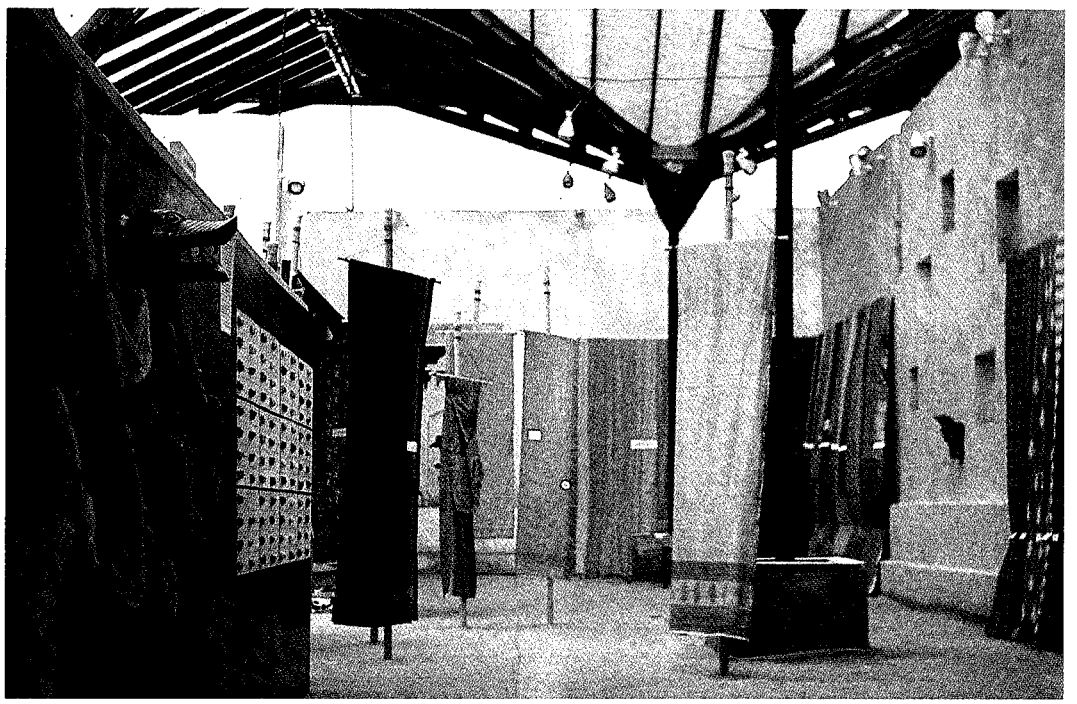
Handloom Pavilion

International Exhibition, Delhi
1958

Brick and mud walls and a cloth roof reflecting the craft nature of the pavilion, was the first work completed by Correa's office. Designed and built in six months, it was completed in November 1958.

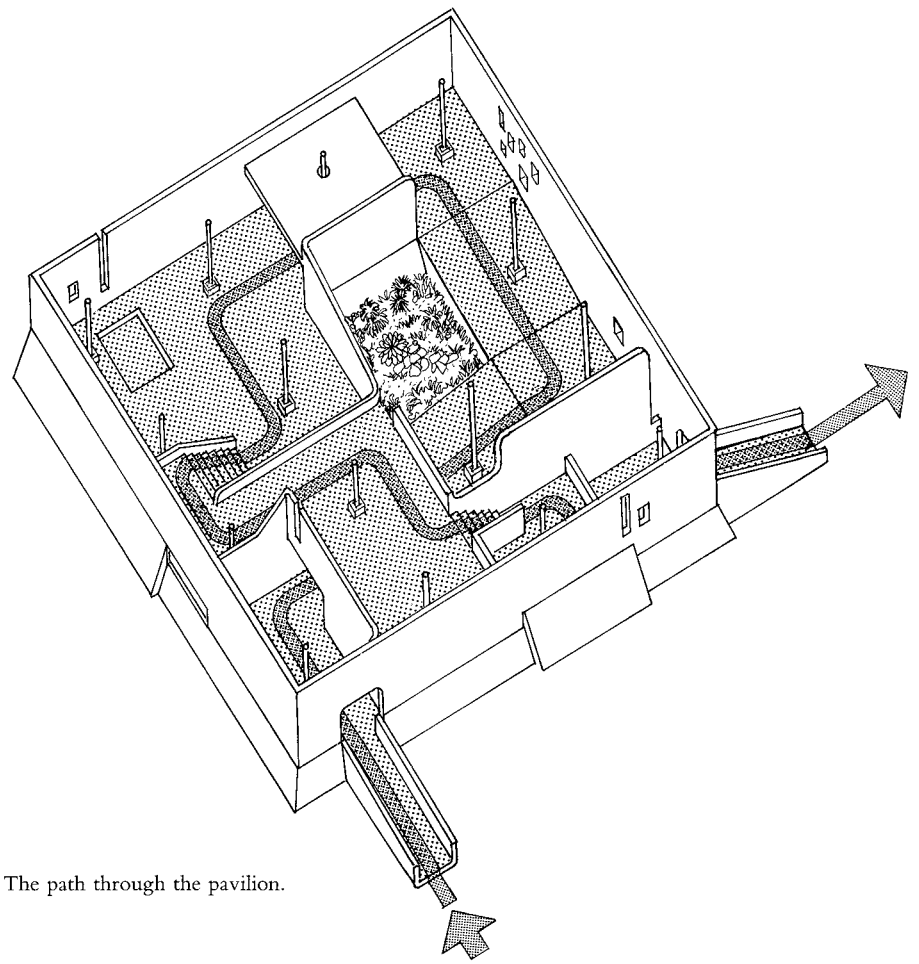
Fifteen squares, each 7 metres × 7 metres, pivot around an interior garden to create a "maze-like" puzzle box through which the visitors move. Due to Delhi's mild winter the spaces are open and separated by partitions and varying levels; a theme explored further in later projects.

The single strongest design feature is the roof, made of wood and handloom cloth, conceived as a series of umbrellas or *chatris* reminiscent of the traditional *shamianas* (tents) used in India as temporary covers on festive occasions. The simple plastered walls form the backdrop for the colourful display of cloths and weavings.

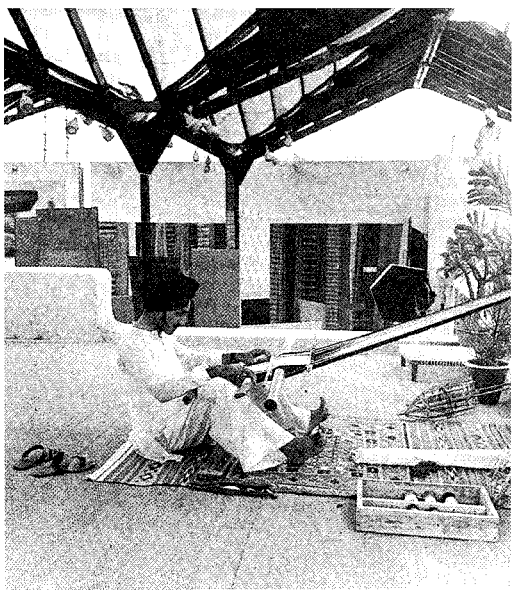


Handloom display.

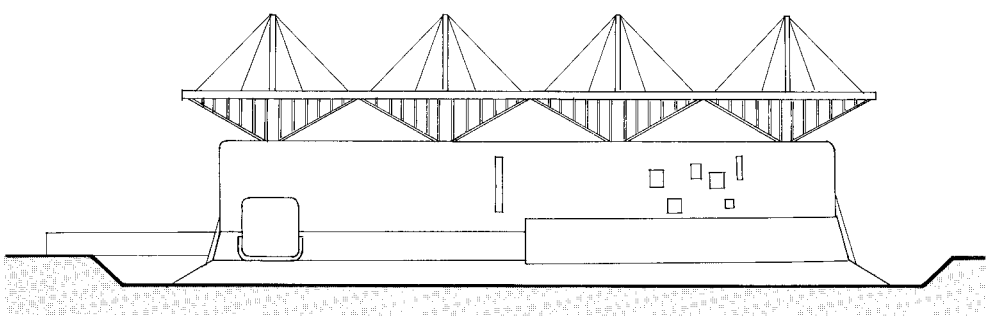
Erecting the cloth *chatris* framed by a timber structure.



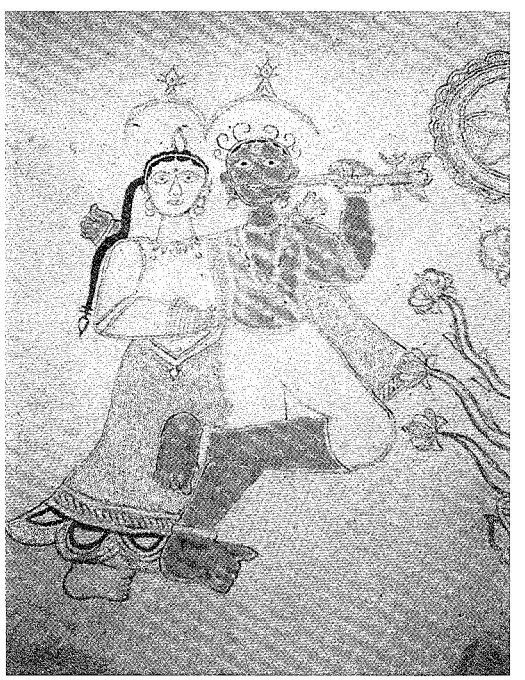
The path through the pavilion.



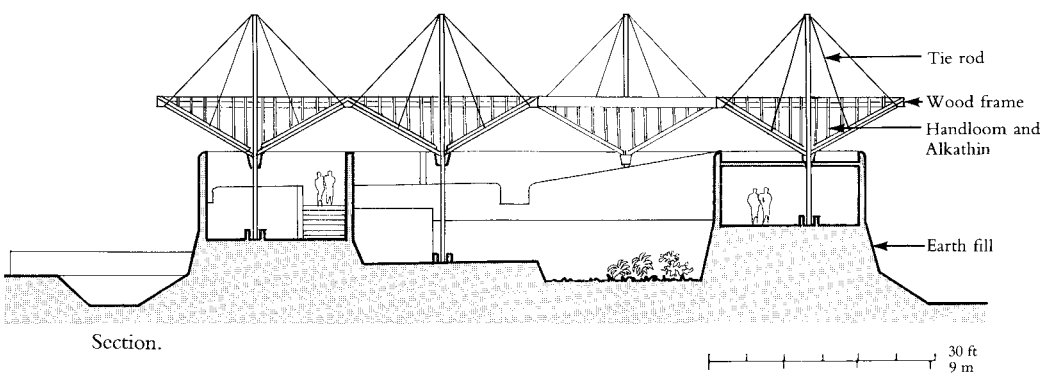
Weaving demonstration.



Elevation.



Madhubani folk art display.



Section.

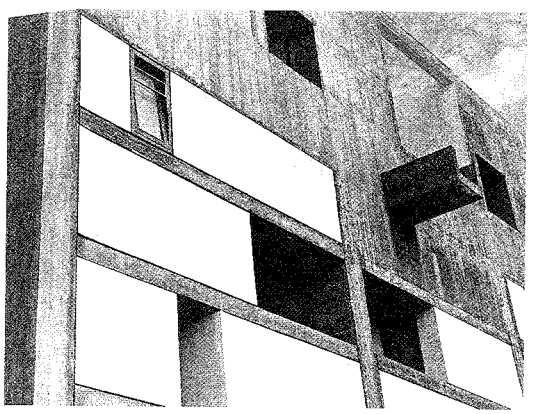
Administration Building

Vallabh Vidyanagar University, Anand
1958–60

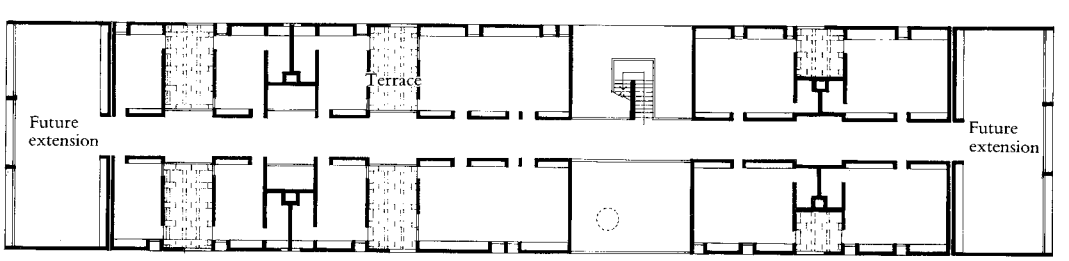
Correa's preoccupation with the control of light and shade by the juxtaposition of building elements and forms, creating semi-open and recessed spaces, characterises much of his work. However, in his university administration building, where the site faces directly east-west within an existing campus, with more than a nodding acknowledgement to Le Corbusier, Correa dealt with the climate by the use of an external skin or *brise soleil.*

The east-west facade consists of an intelligent combination of openable wood and glazed shutters, recessed openings, storage units on the inside, all of which serve to modulate the building's temperature and lighting.

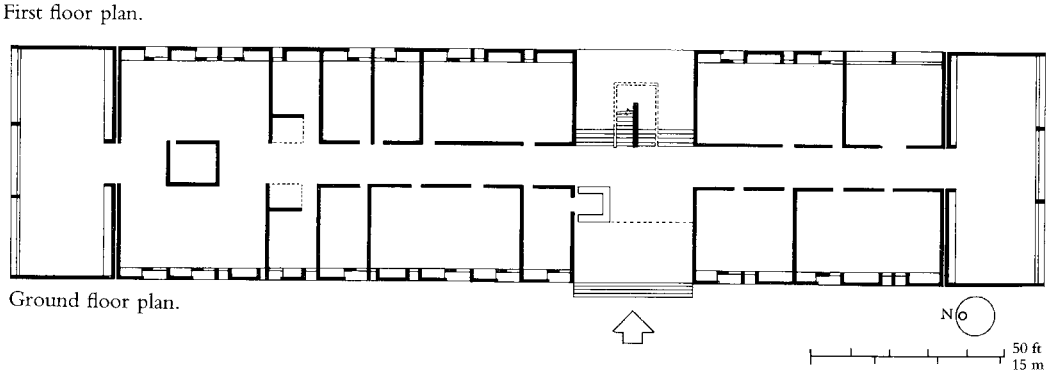
This building, completed in 1960, has three storeys of which the lower two contain administrative offices and the top one houses university guests and visiting professors in small terrace flats.



Detail, west elevation.

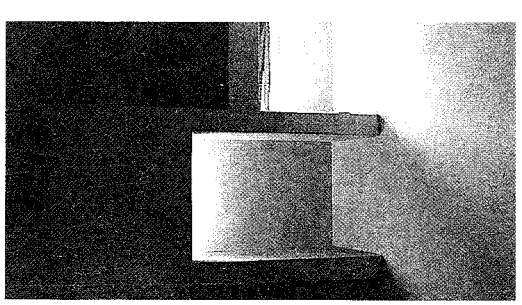


First floor plan.

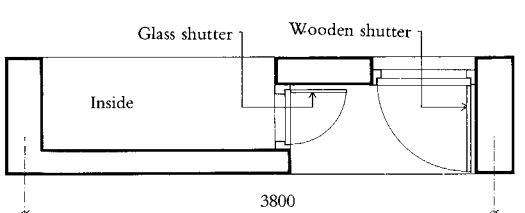


Ground floor plan.

West elevation.



Window from the inside bathed in light.



Window detail.

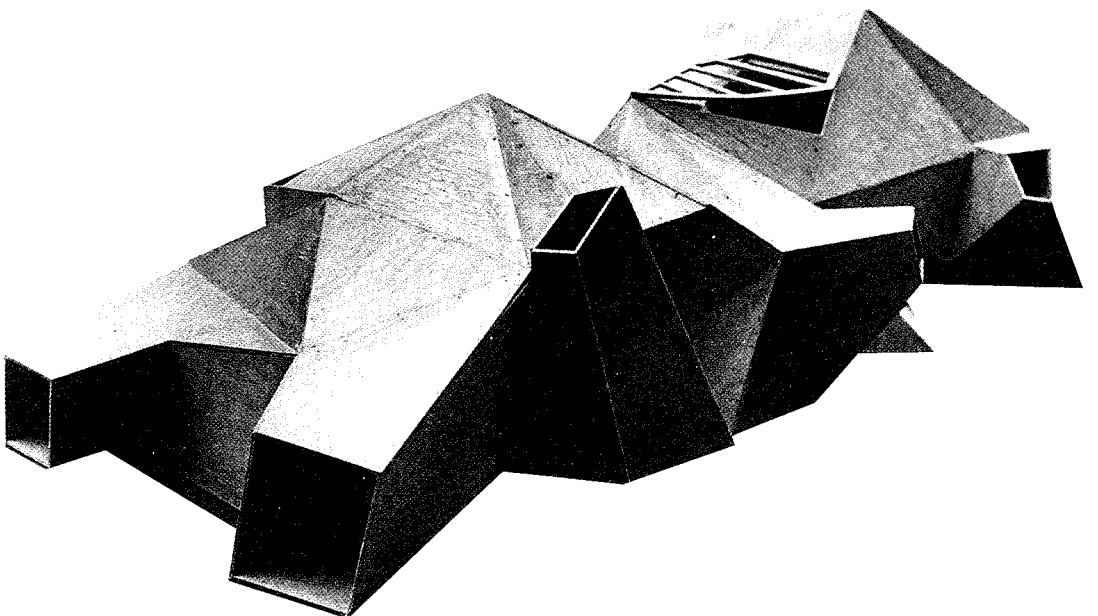
Hindustan Lever Pavilion

Industrial Fair, Delhi
1961

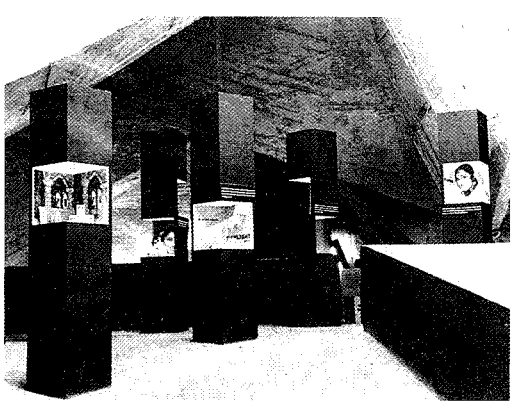
Industrial fairs and exhibitions provide architects with rare opportunities to experiment with forms and materials, and it was Correa's good fortune to receive this second commission for a pavilion in 1961.

This project is a variation on the Handloom Pavilion — it follows the same idea of progression through a maze, creating a path of ramps and platforms encased by walls. In this instance the space is enclosed by a random folded reinforced cement concrete sprayed under pressure *in-situ*.

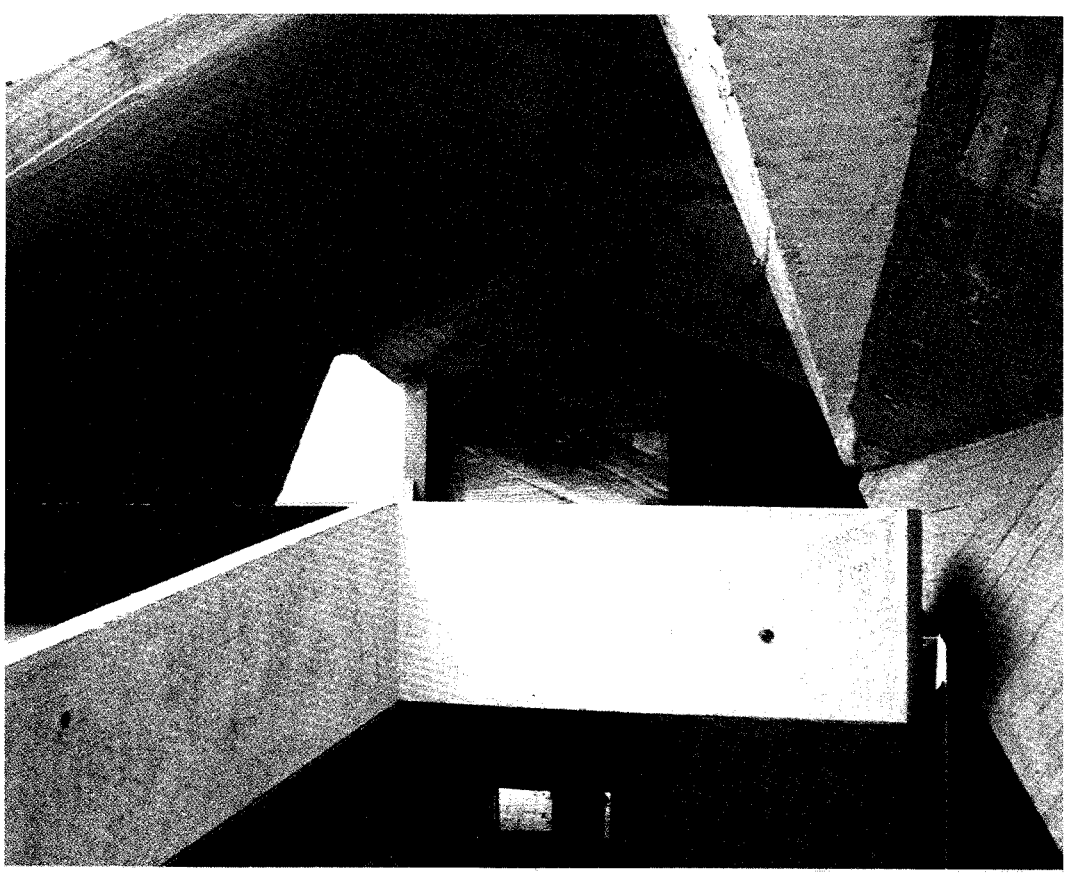
The plate form provides both spatial and visual interest. Here the toplight "cannon" openings are used to set up air convection currents — again a feature of the Ramkrishna House and the later Bharat Bhavan.



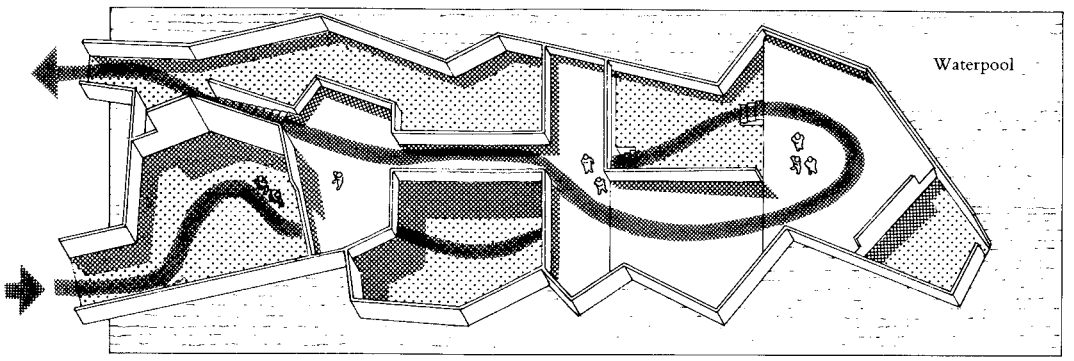
Model, entrance view.



Display.

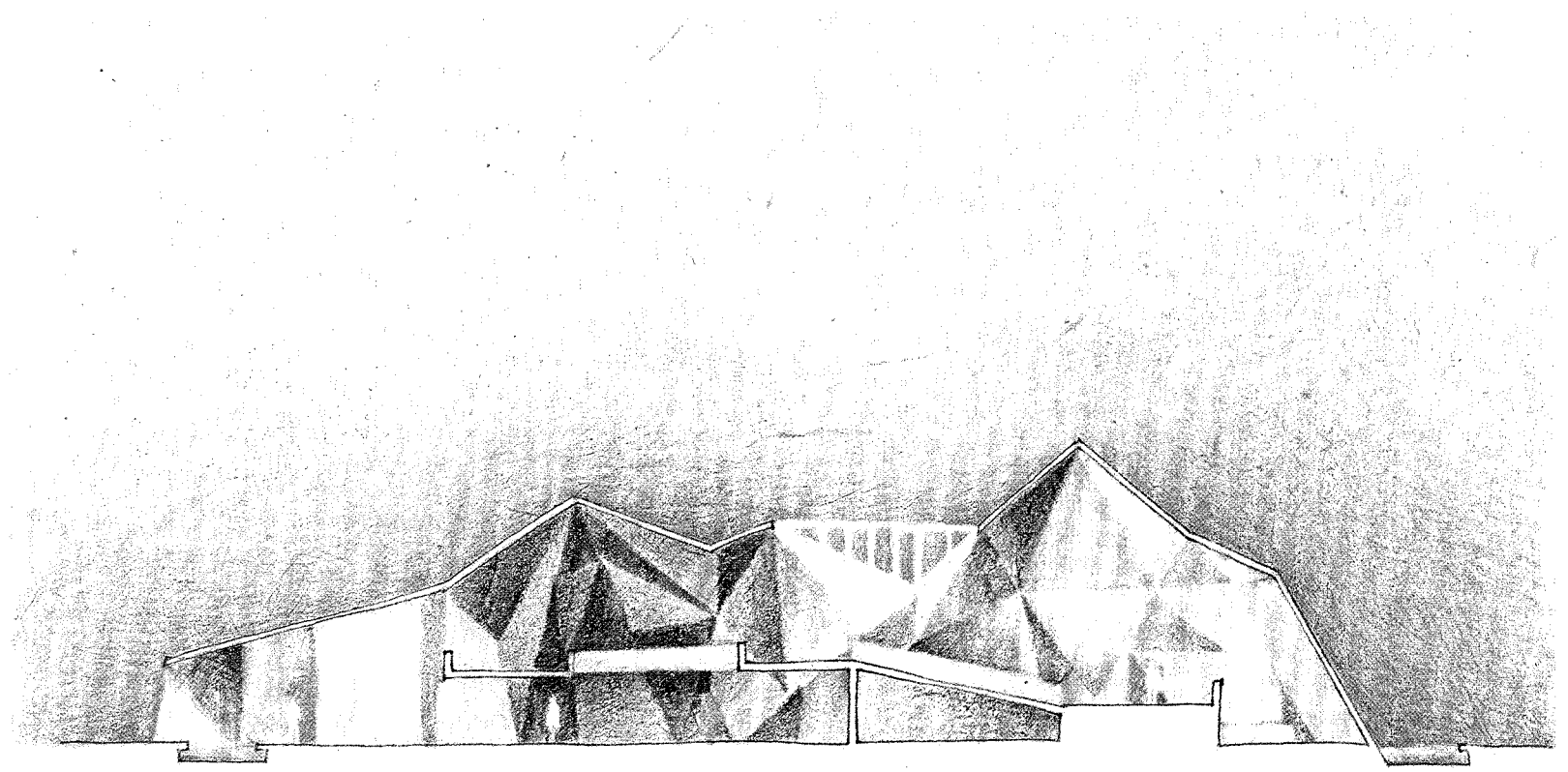


Interior view.



Plan with the path through the maze.

Exterior view.



Section.

Ramkrishna House

Shahibhag, Ahmedabad
1962–64

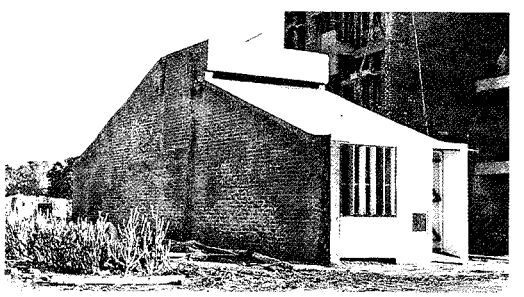
This large brick and concrete residence was completed in 1964 for one of Ahmedabad's wealthy mill owners. It is built along one edge of the site to maximise the garden and the southern exposure for the principal living areas. The plan sets up a series of load-bearing walls punctuated by interior courts and natural top-lit spaces. The plan is organised into four main zones; the family living/entertaining area, the guest room with its own garden and the service areas (kitchen, servants rooms, etc.) on the ground floor, and the more private family area and bedrooms on the upper floor.

The parallel walls which form the backbone of the Ramkrishna house were derived from the so-called *tube house*, a project at the opposite end of the economic scale — an all-India competition entry for which Correa won the first prize — but which only reached the prototype stage.

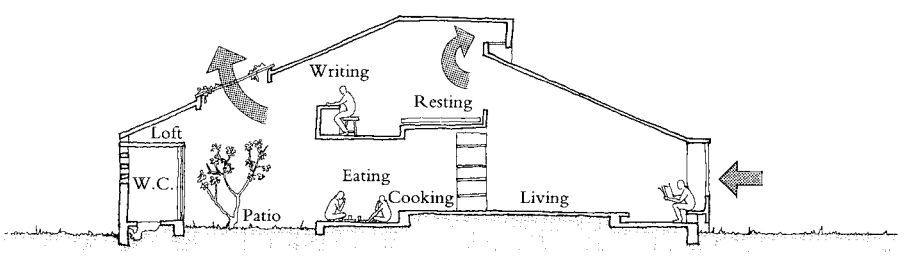
The Ramkrishna house perhaps represents the culmination of ideas explored in the early 1960's, to do with climate and housing in India. The urban model *tube house* is here carried to its conclusion. In later housing such as his entry for the Previ project in 1969–73 this is also further explored. This approach to space persists in Correa's work until the 1980's where the linear urban row-housing model is replaced by a cluster form of organisation as with the Malabar Cements Township and Belapur Housing in New Bombay.

Tube House

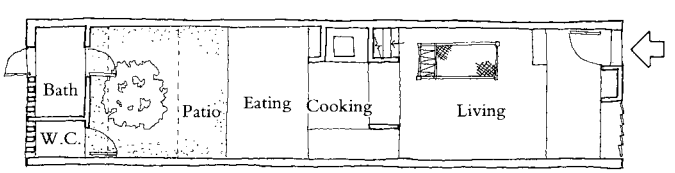
One of the architect's better-known works, the *tube house* unit was 18.2 metres long by 3.6 metres wide (60 feet × 12 feet). The section of the unit has a sloping roof which, in conjunction with adjustable louvres in the window by the entrance, sets up a continual convection current, naturally ventilating the dwelling. The use of different levels (without using doors) creates multi-use spaces and ensures privacy at the same time.



General view of prototype.

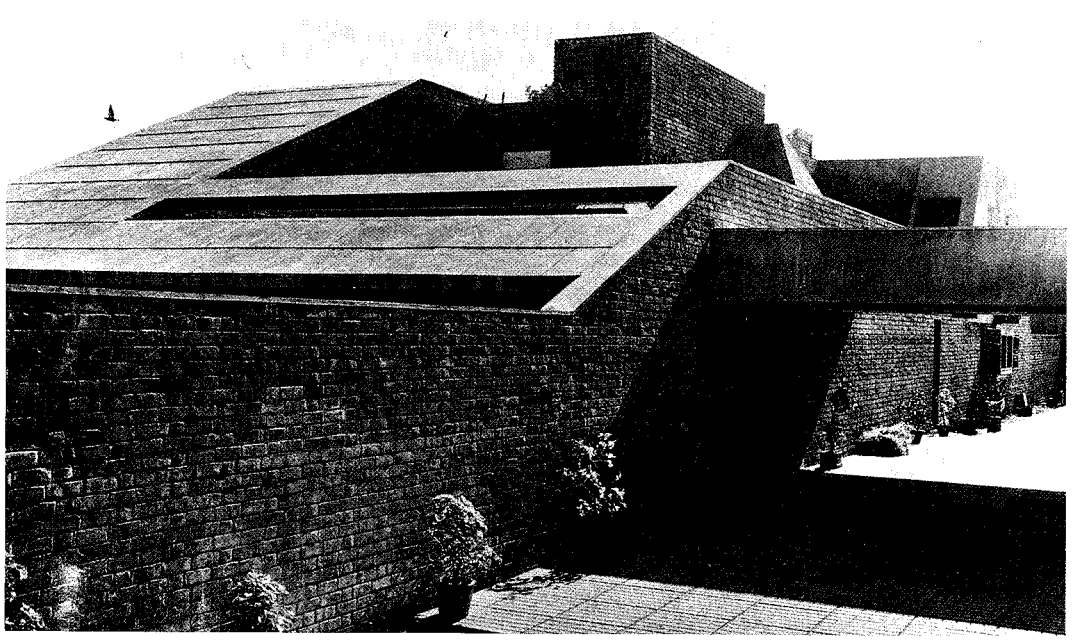


Section.

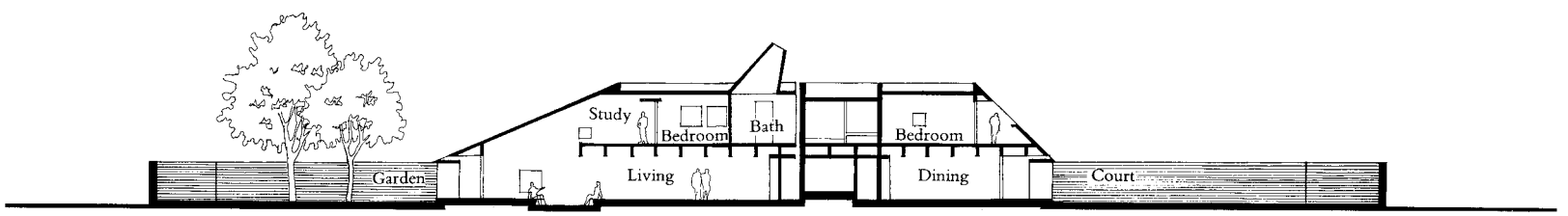


Plan.

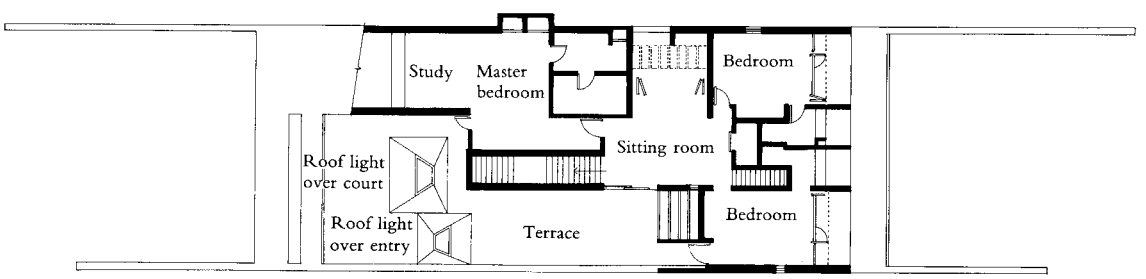
20 ft
6 m



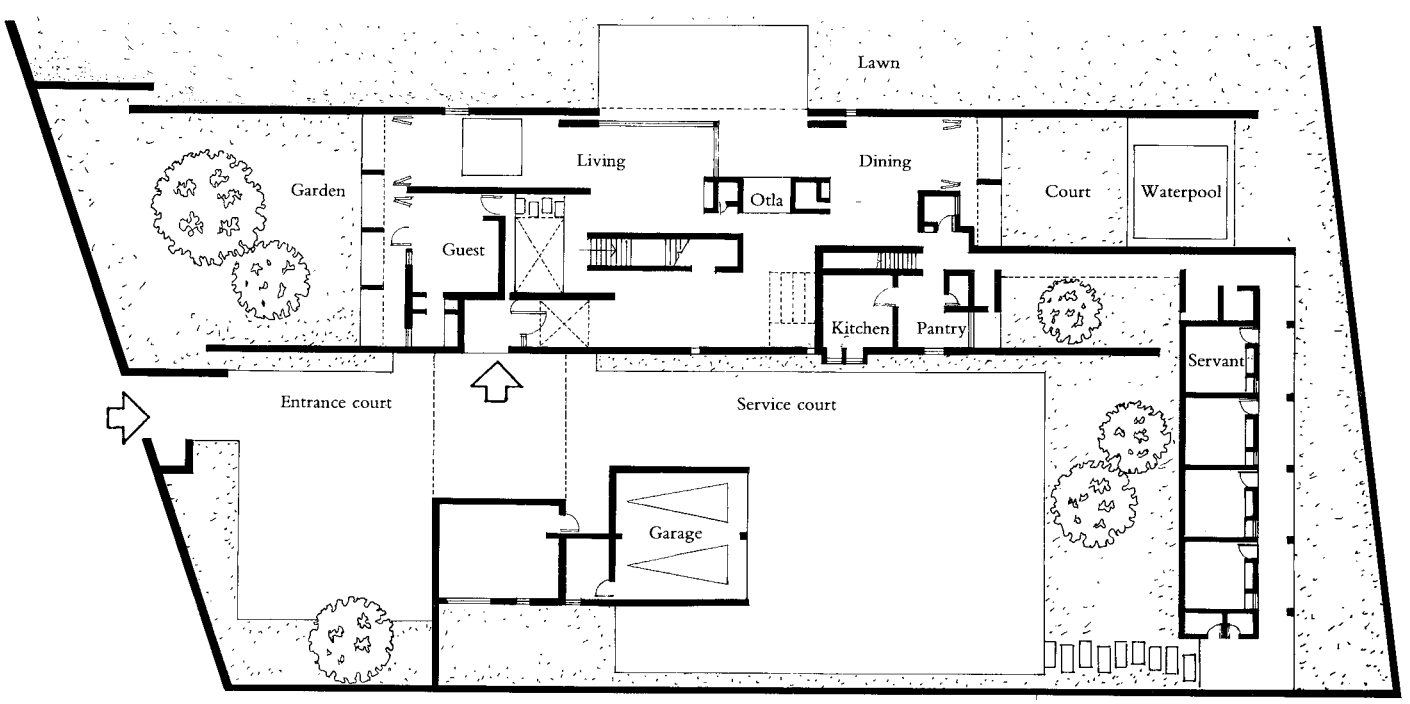
Entrance.



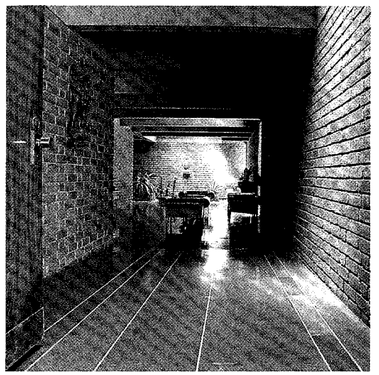
Section.



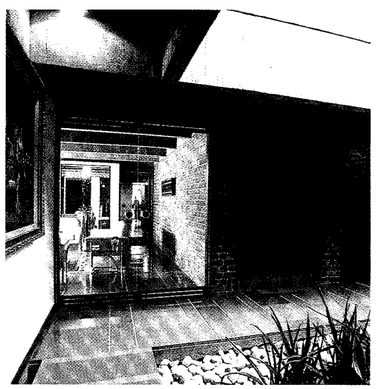
First floor plan.



Ground floor plan.



View from the entrance to a sitting area.



View from the internal court toward the dining area.
Left: South elevation from the lawn.

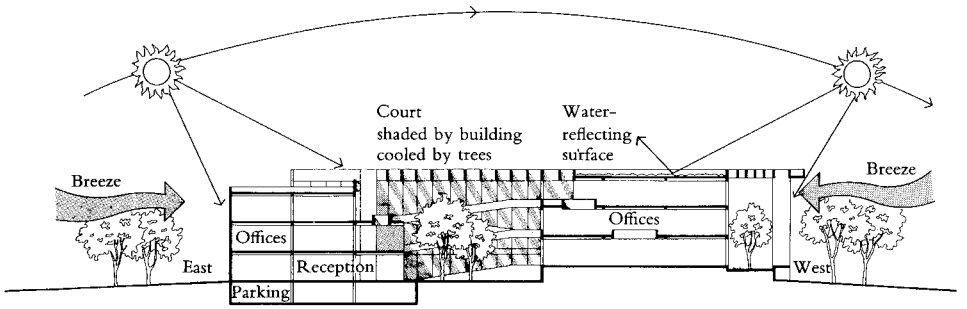
ECIL Office Complex

Hyderabad, Andhra Pradesh
1965–68

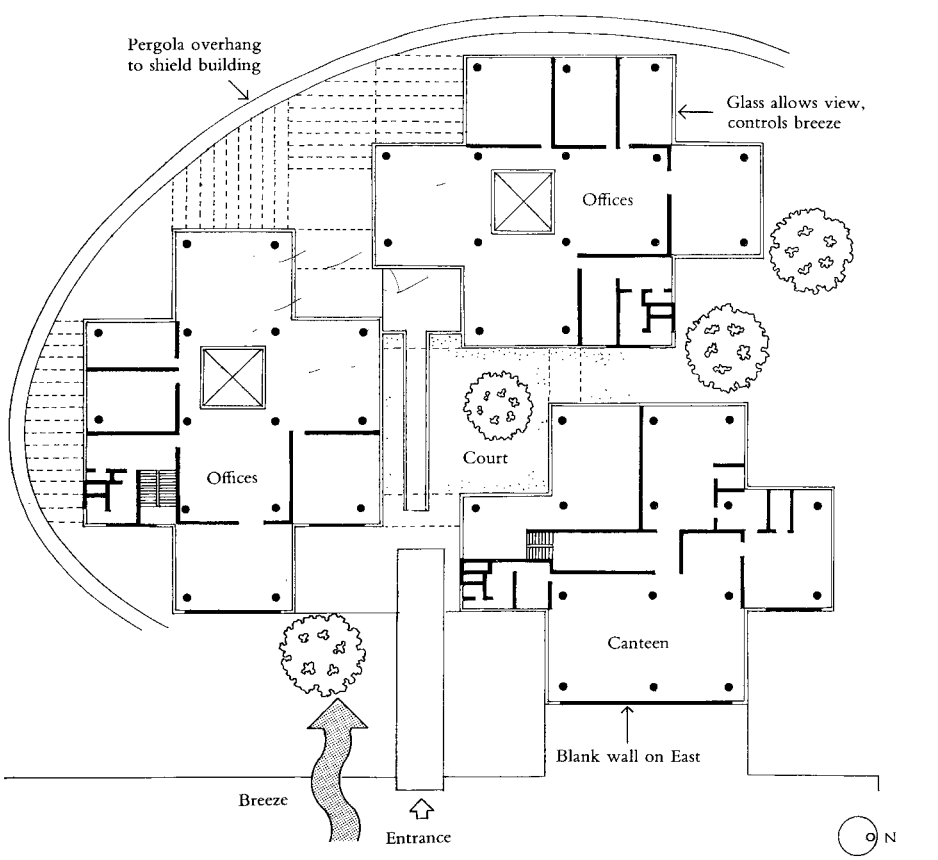
The ECIL (Electronics Corporation of India Limited) office complex's client, Dr. Vikram Sarabhai, requested that the building be energy conscious and use passive solar energy in the design, eliminating the need for a mechanically air-conditioned environment. This call for energy conservation was made in 1965 just when such experiments were being conducted in the USA and which in the energy crisis of the 1970's gained creedence as a serious alternative to more conventional approaches to building technology and environmental control. The brief also specified a need for the incremental expansion of spaces.

The solution consisted of a number of modular units arranged in cruciform shapes and separated to provide natural light and ventilation to the office areas. To minimise heat-gain the three cruciform units have been sealed off on the east facades. And on the west, which has a panoramic view of the town and surrounding landscape, shade is provided by a pergola which has a substantial overhang on the west and south. The roof consists of three elements: a solid surface; a "reflecting surface" comprised of a thin membrance of water; and a slatted pergola. The staggered office spaces draw air from the east through the central courtyard and spine. (Some of the offices were later airconditioned by window units for added comfort and prestige.) The office blocks which have half-level differences are connected to each other by gently sloping ramps.

The roof with its rim beam acts as an ordering device and lends cohesiveness to the design. In this building the architect reveals a synthesis of ideas developed in the early work — here there is a consistent follow-through of concepts which sets the scene for his larger projects such as the Kanchanjunga apartments and hotel resorts. The ECIL complex, completed in 1968, remains one of his seminal works.

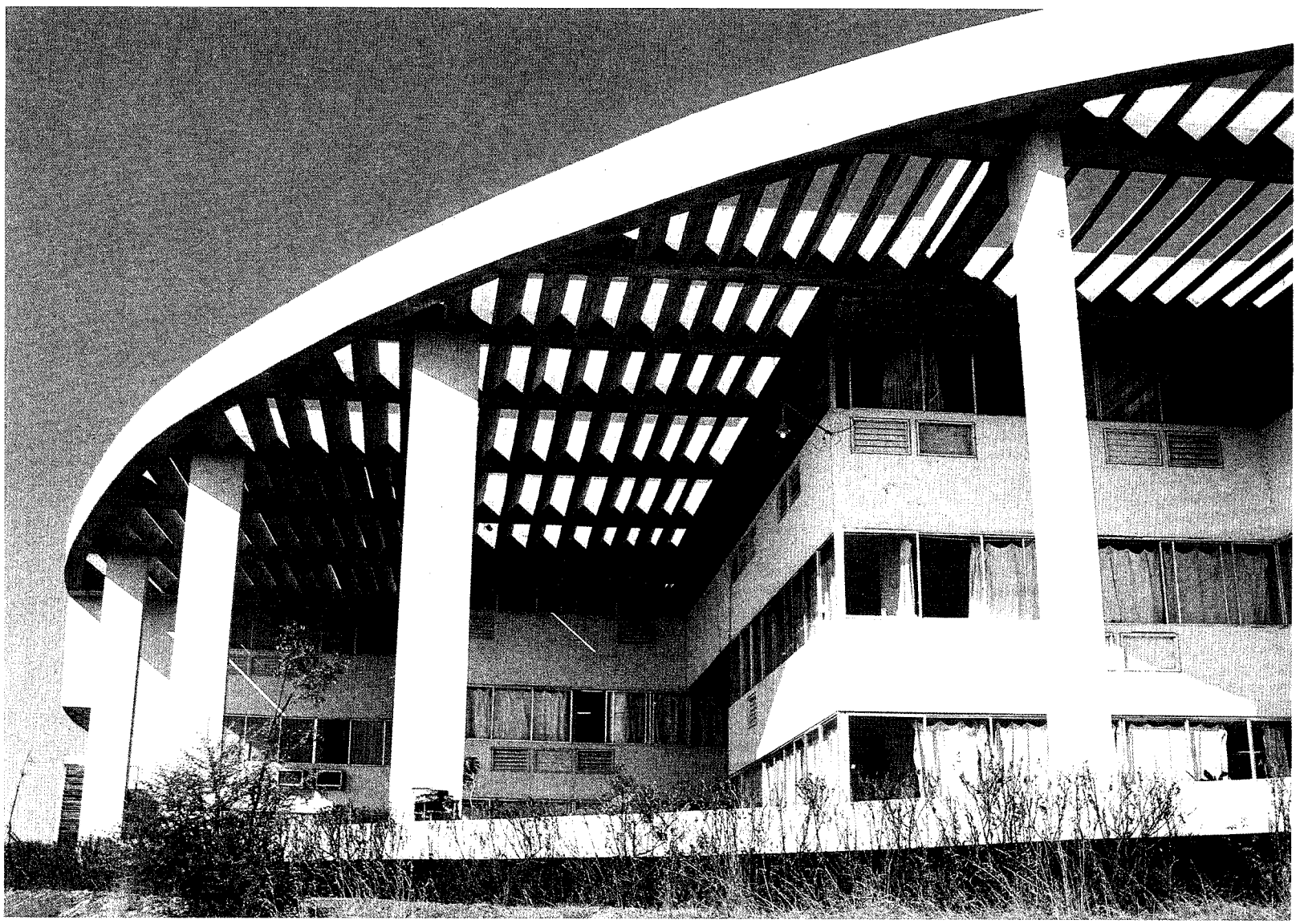


Section.

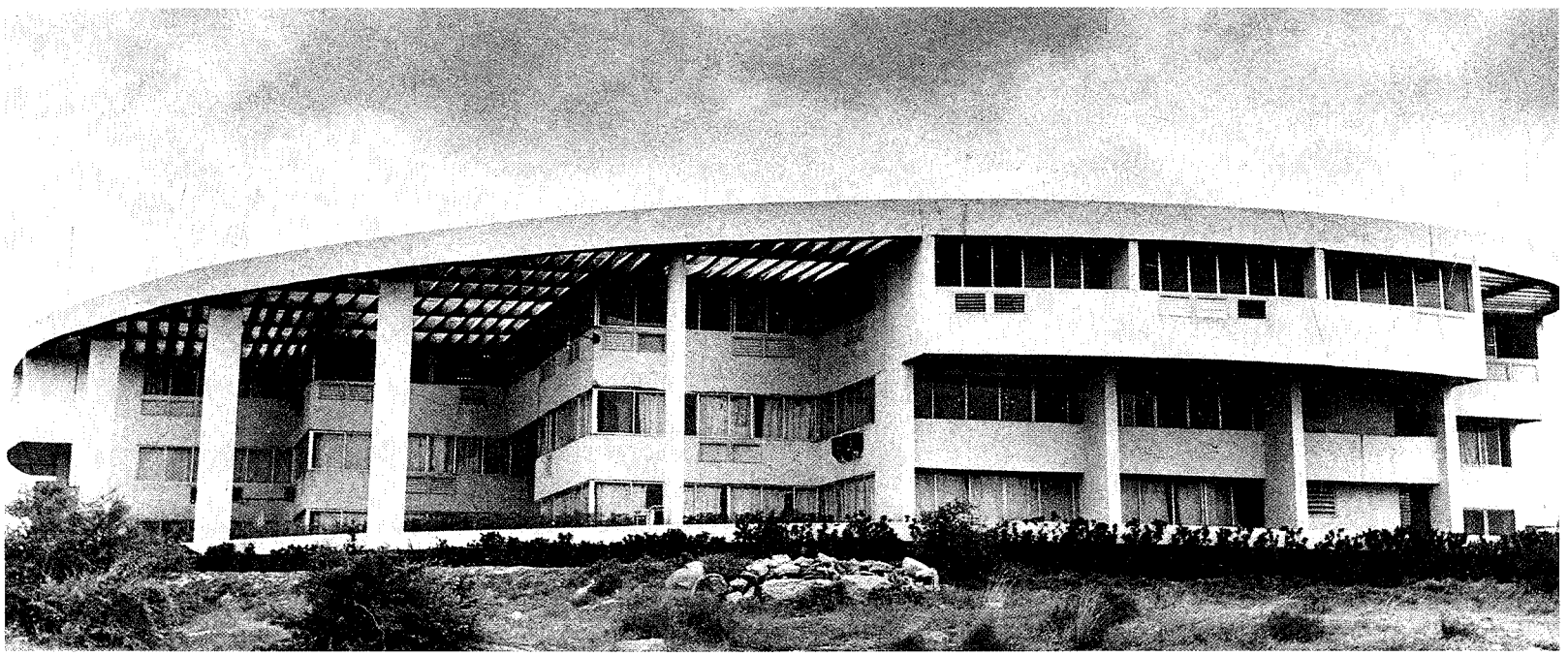


Plan.

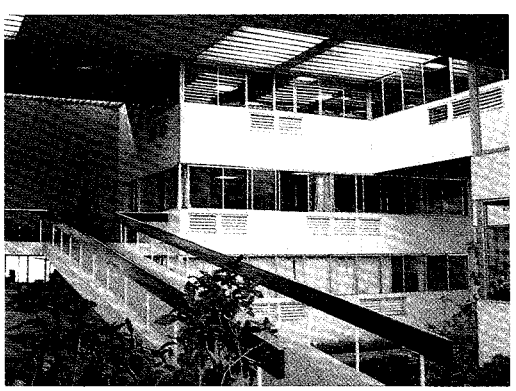
60 ft
18 m



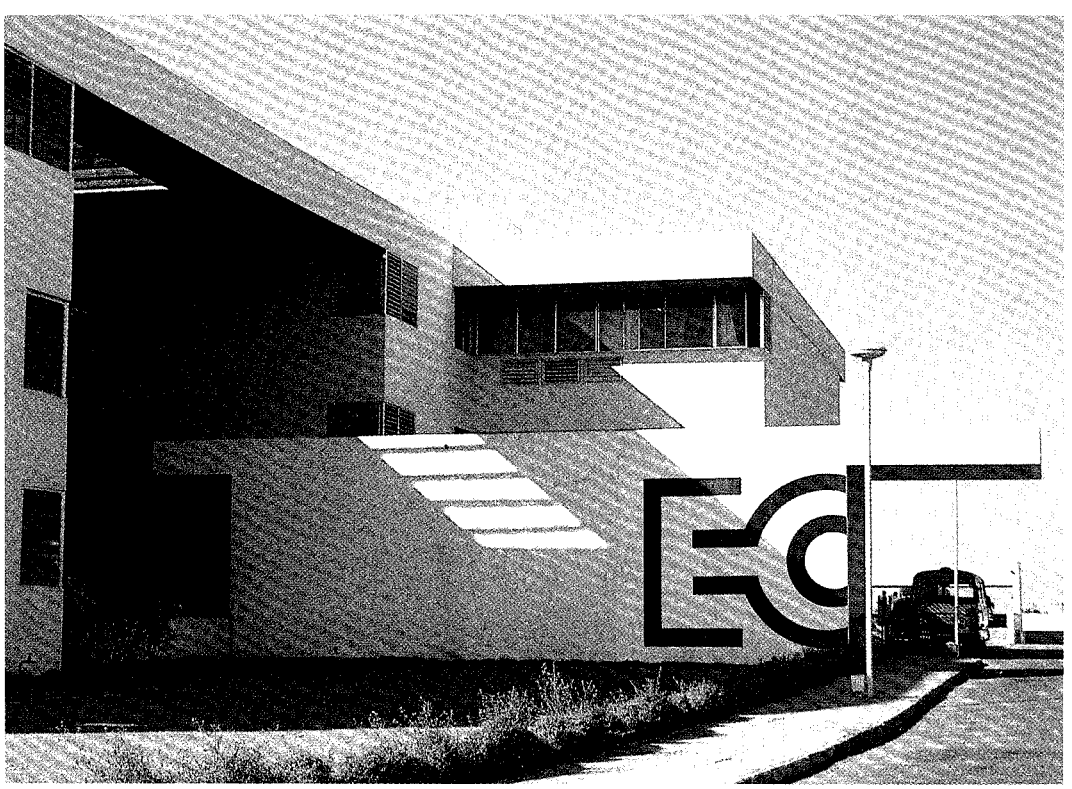
General view of complex from the south.



General view.



Interior court with ramp up to offices.



View towards the entrance from the ramp.

The internal court with its ramp and pergola.

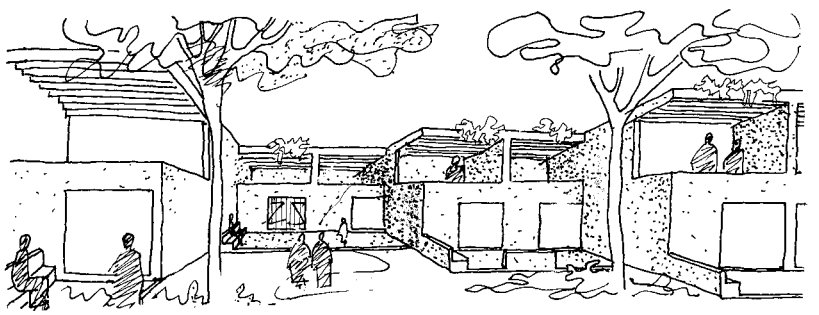
Cablenagar Township

Kota, Rajasthan
1967

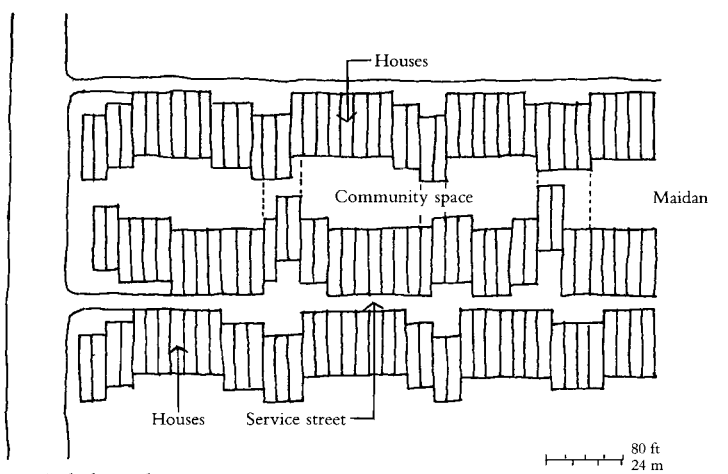
The Cablenagar Township, designed in 1967 but never built, was to be at the edge of the Rajasthan Desert using several ideas which combined Correa's attitude to climate and materials.

In such hot dry regions the courtyard has been an intelligent answer to the climate by trapping cool overnight air providing humidity and comfort in the hot dry afternoons. The greatest source of heat, the roof, has traditionally been thick so that the heating process takes longer to radiate into the rooms below. For reducing sun penetration to the rooms, the houses of the township are protected by a pergola which both shelters the unit and makes the roof a usable terrace. In addition to this the courtyard is used to create internal volumes which open to the sky to generate convection currents (as in the Ramkrishna House).

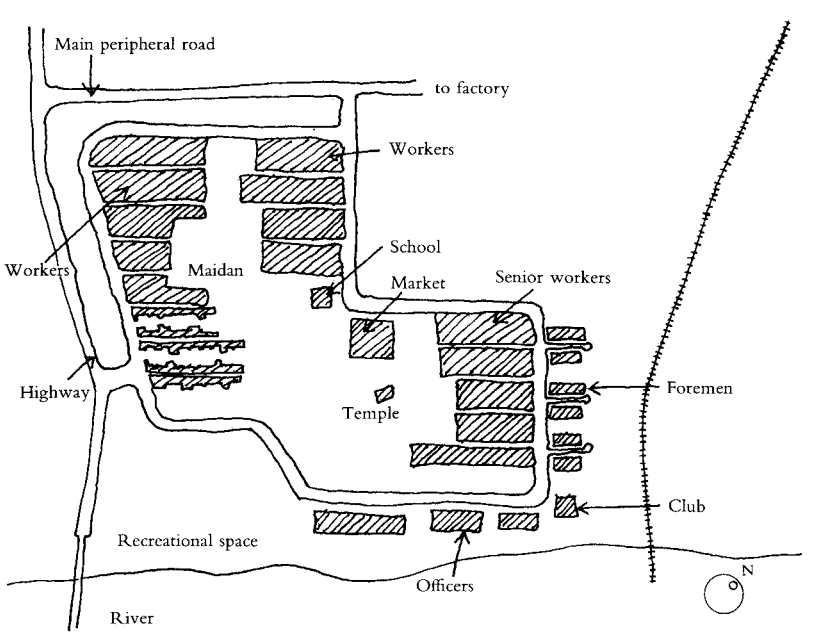
The residences were designed as row houses with community spaces, a theme continued in the Previ Experimental Housing some two years later. The form was also clearly dictated by the use of materials in a load bearing structure comprised of parallel walls. Locally available sandstone, quarried in rectangular blocks and flat slabs 3.3 metres × 0.4 metres × 0.1 metres, formed the basis of a 3.3 metre module for the housing units. The stone was to be used throughout creating a homogeneity in the units which varied in size depending on the level of occupant, from workers to professionals and managers.



Sketch of proposed housing.

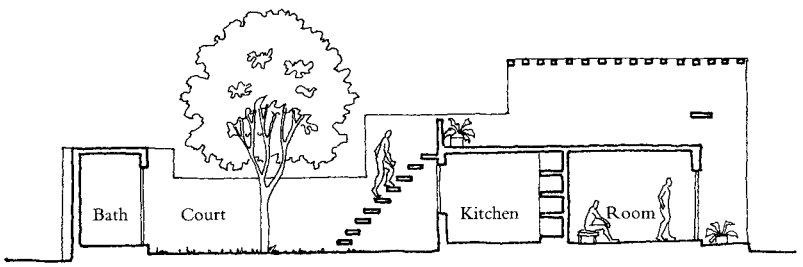


Typical cluster layout.

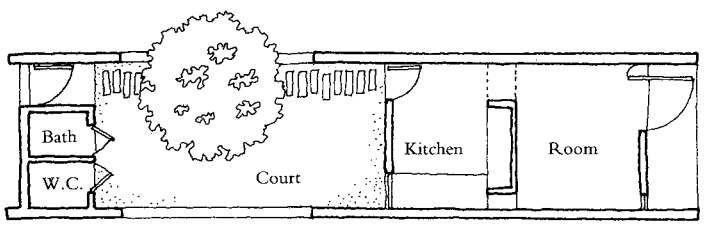


Site plan.

Type G (Smallest house)

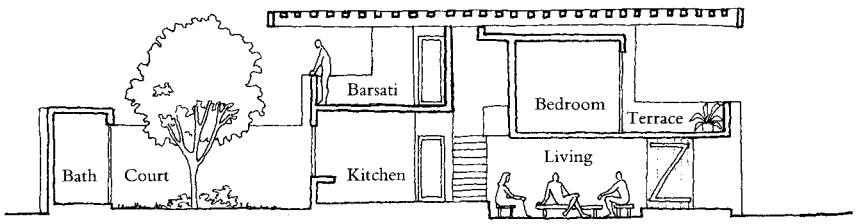


Section.

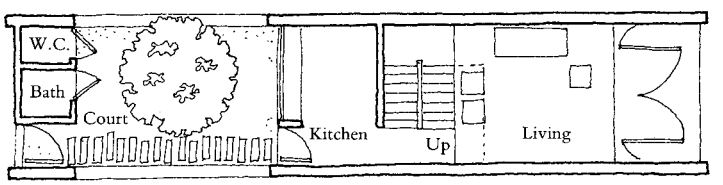


Plan.

Type F (Mid-size house)

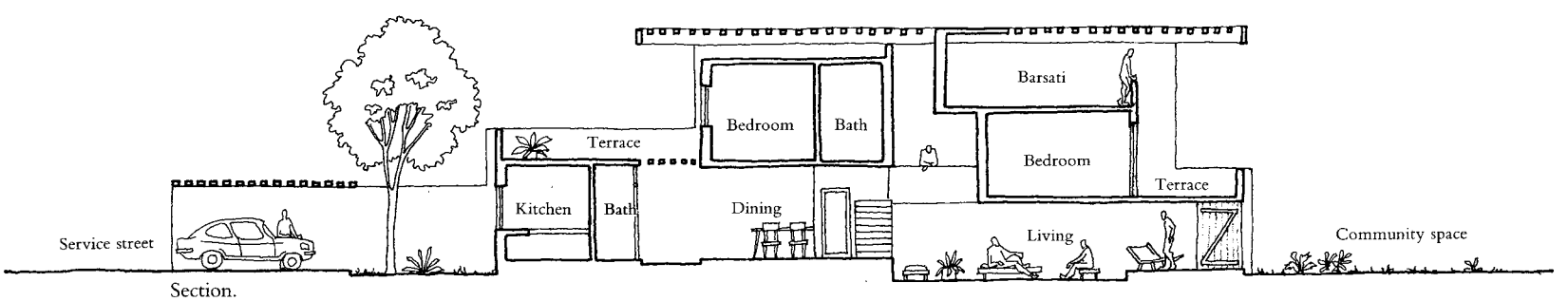


Section.

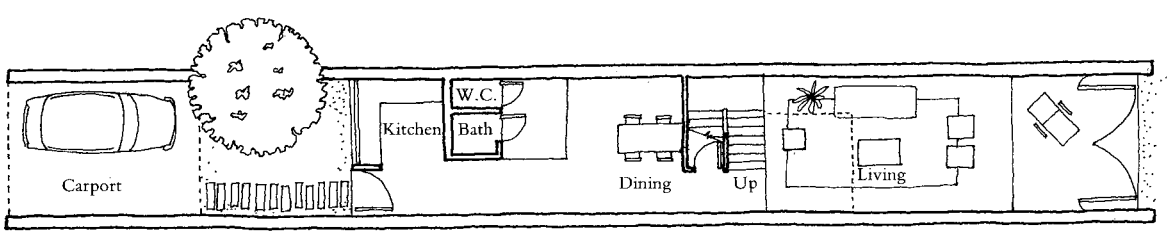


Plan.

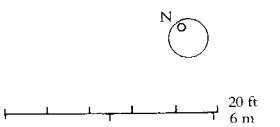
Type D (Largest house)



Section.



Plan.



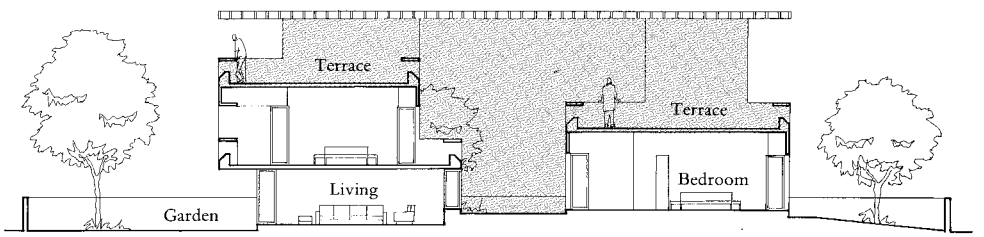
Parekh House

Ahmedabad
1966-68

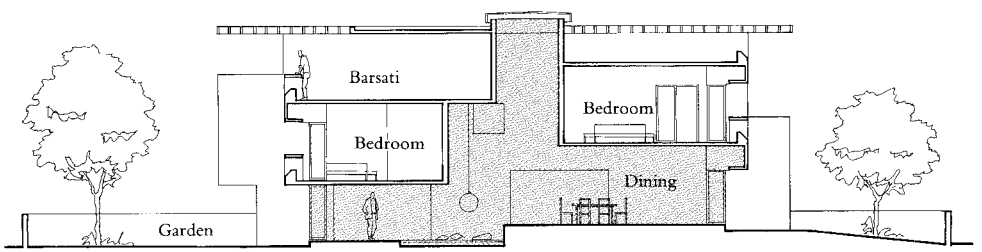
Ideas on section, related to climate in dwelling structures based on parallel walls, find their continuation in the Parekh House of 1968. The section, first evolved for the housing in the Cablenagar Township at Kota, creates two basic conditions of use — one for summer and the other for winter.

The "summer section" creates a pyramidal central interior space which minimises the direct exposure of the spaces to the sun, reducing heat gain but allowing for the escape of hot air. This area is to be used mainly during the hot summer afternoons. Conversely, a reverse pyramid opening up to the sky, usable in the cold season and summer evenings is considered as a "winter section".

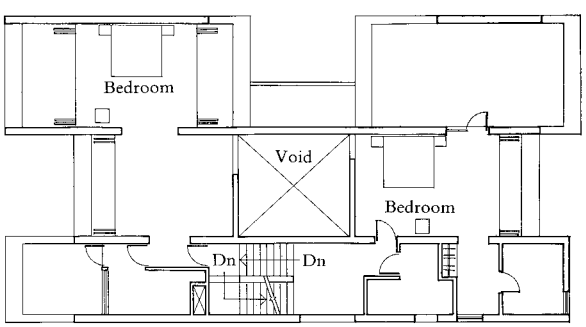
The site for the house has an east-west orientation along its major axis. The plan consists of three bays so that the summer section is sandwiched between and protected by the winter section on one side and a service bay on the other. The house is constructed of brick load-bearing walls supporting form finished concrete slabs. The elevations express directly the climatic considerations of the design.



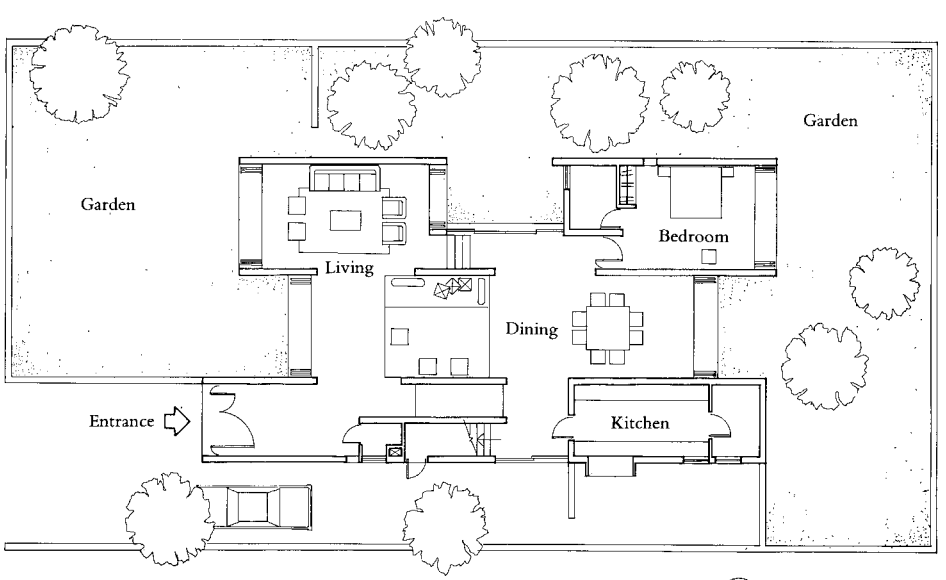
Winter Section.



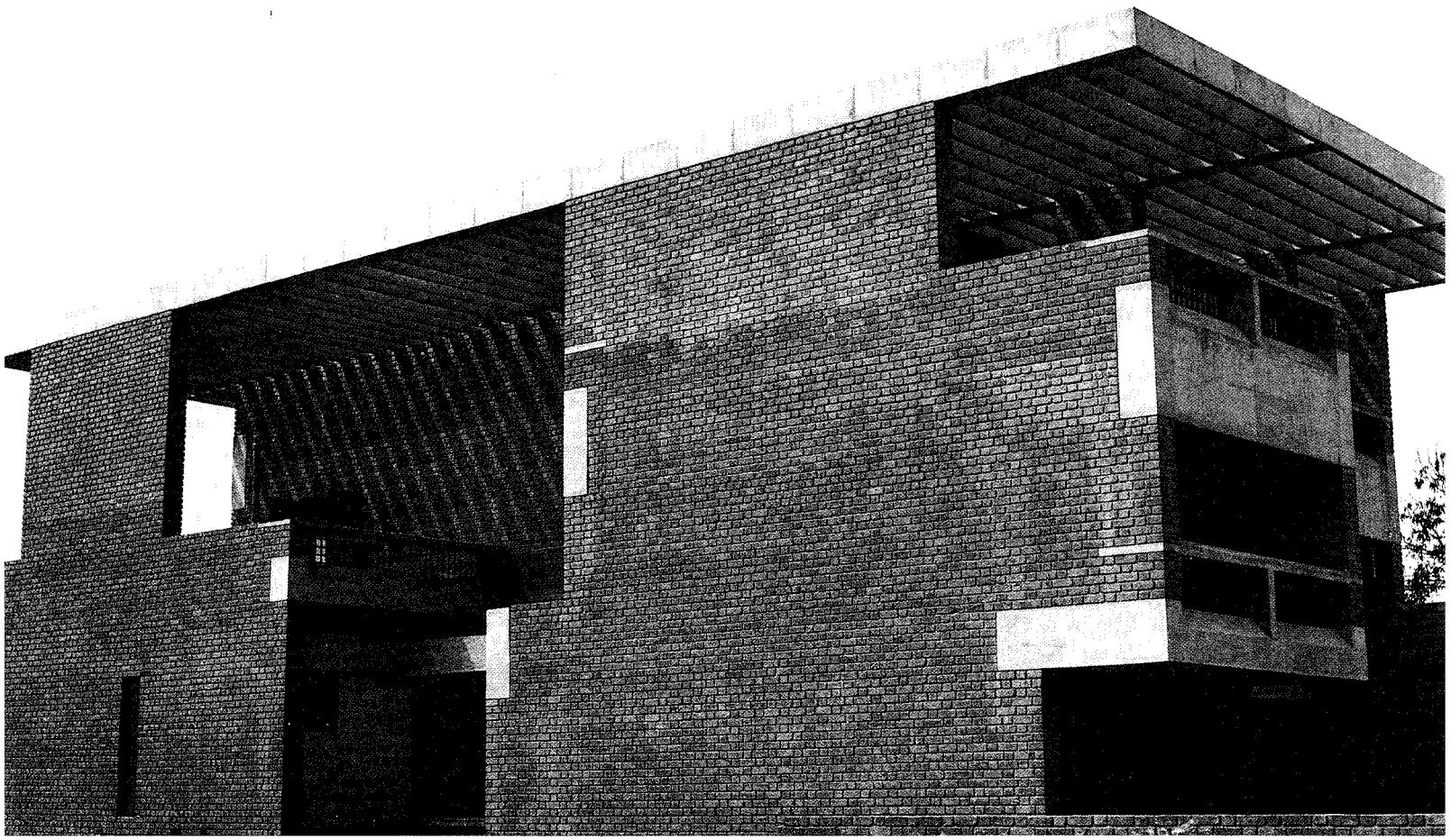
Summer Section.



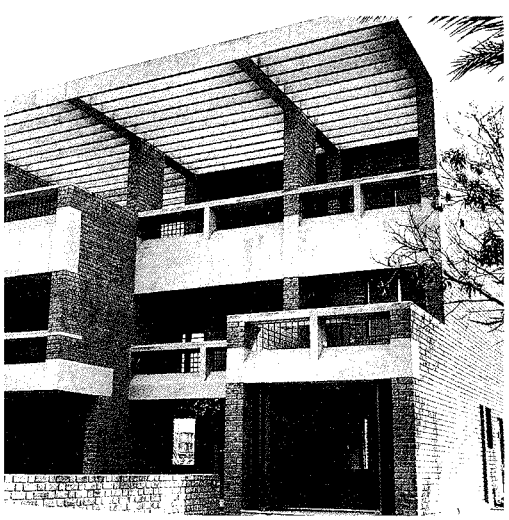
First floor plan.



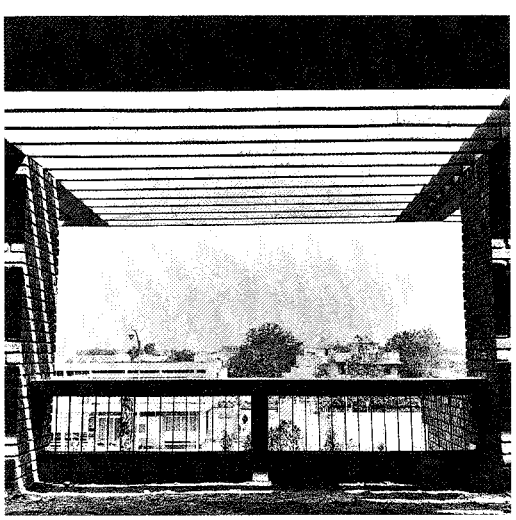
Ground floor plan.



East elevation expressing the winter section.

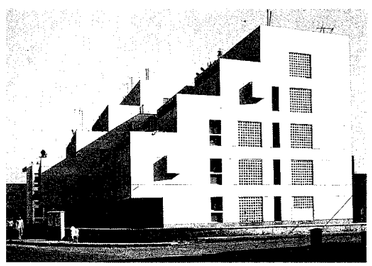


Entrance facade.

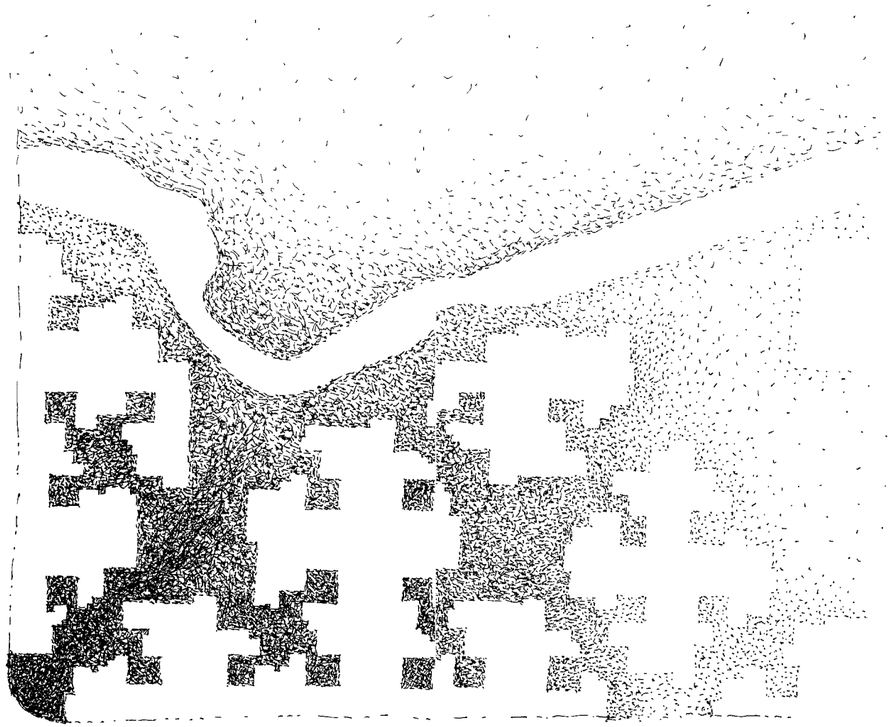


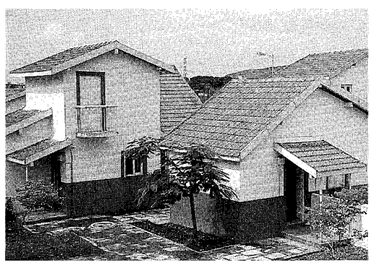
View from the pergola-covered terrace.

Housing and Urban Planning



CIDCO middle-income housing.





Belapur housing.

It is in Correa's consideration of issues beyond those normally associated with architecture and design that one finds evidence of his efforts, over the past twenty years, toward the amelioration of human poverty through planning and urbanism. He pays great attention to housing — perhaps the single greatest challenge facing activist designers in the Third World today.

An important formative experience was the invitation from Professor Anderson in the fall term of 1962 to be Bemis Professor at MIT. This was a graduate studio which Correa taught with Donald Appleyard and Imre Hallas on the "Cidade de Guyana". The students were supposed to develop conceptual ideas for the city as an academic exercise (the actual city was already under construction in Venezuela). The experience highlighted key urban issues connected to land tenure, location, and land use. When he returned to Bombay he realised that the shortness of supply of urban land there necessitated a redefinition of the city, an interest which continues to preoccupy him.

Correa began discussing this with the structural engineer Shirish Patel and planner Pravina Metha. At about that time in 1964 the municipality published their Master Plan which stretched the city further in a north-south direction. This group of three produced an alternative set of ideas which were published in the *Times of India* and later as a special issue in the magazine MARG. Their proposal, featuring the opening up of new land and greater access to jobs, postulated a new city across the bay — New Bombay — in an attempt to re-structure the city. In 1970 the Government of Maharashtra accepted this proposal and set up CIDCO (City and Industrial Development Corporation) with Correa, in an honorary capacity, as Chief Architect for the new city. "Unfortunately, however, many of his ideas for reorganising Bombay have been ignored ... We should blame the authorities for having denied him the opportunity to humanise Bombay."[1]

This direct involvement in the city where he lives and practises was a milestone in Charles Correa's life, as it created a schism in his professional life between his humanity and concern for sheltering the urban poor, and his work as a designer and form giver. It is his paradox but also strength that he has devoted himself to both with his characteristic energy. These two sides to the man make it harder to either judge his work or to conveniently label him — in this he is a most unusual architect. It is likely that this dichotomy has also drawn him to likeminded architects such as Sumet Jumsai of Thailand, William Lim of Singapore and Fuhimiko Maki of Japan, all of whom perceive and act on this dual role of the architect in the Third World. (I use the term "Third World" here as it is Correa's preferred phrase, which he says symbolises a third choice — Capitalism and Communism being the other two — for a form of development.)

Down from the macro scale of the city, Correa's own practice in urban design concerns itself primarily with the street and the neighbourhood. His designs for living environments have changed significantly over the years. Illustrated in this section of the book are a few such schemes, starting with his competition entry for the PREVI Housing in Peru, the Tara middle-income level scheme, and the Malabar Cements Township. Here the concern for the progression through space (seen in his Early Work) is apparent in the particular way he arranges streets and houses to form both roads and communal spaces. The emphasis is on a linear development, as evidenced by his concern for services, infrastructure, and the most economical use of resources.

In his later work, this concern is developed further to encompass his more intellectually articulated ideas. To quote from his book[2]: "If there ever is a Bill of Rights for housing in the Third World, it would surely have to include — enshrine! — the following cardinal principles: Incrementality, Pluralism, Participation, Income generation, Equity, Open-to-sky space, and Disaggregation." These factors sum up Correa's lifetime lessons for housing.

These are fully explored in his Housing at Belapur of 1985, which he considers to be his most robust scheme to date. Belapur uses cluster planning and incrementality as its starting point, recognising the importance of individually-owned plots to encourage improvement of living conditions by the inhabitants themselves. The introduction of social responsibility into a low-income scheme starts here in the physical planning itself.

Since 1985, as Chairman of Prime Minister Rajiv Gandhi's National Commission on Urbanisation, Correa has turned to issues related to the built environment of settlements based on economic and macro analyses. This has led him to consider urban-rural relationships in a regional context and questions related to social responsibility in the environment.

He still retains an interest in the neighbourhood scale of events — perhaps due to his deep roots as a designer above all. The recent schemes after Belapur, such as the ACC and Bagalkot Townships, illustrate his move away from a pure cluster grouping to that of row-houses strung together along the periphery of a site, like a necklace, along a spine that acts as private space (as opposed to spine as circulation space), arranged in clusters with connected central communal gardens. This combining of his earlier approaches — row-house and cluster — is leading to a new series of solutions, the synthesis or success of which is yet to be made evident.

The single family villa, which played an important role in his early development, no longer remains a building type for major experimentation, although he still designs houses from time to time.

One scheme, amongst a number of others of a similar nature, which does not fit into Correa's usual housing concerns is that of the high-rise Kanchanjunga Apartments started in 1970 and finally completed in 1983. These apartments are for very high-income families and emphasise ideas on form, view, life-style and comfort. These apartments carry out ideas on climatic design treated in section, echoing Le Corbusier's experiments with the "slip-section" dwelling unit, best illustrated in his Unite d'Habitation in Marseilles (1945–52), and to a lesser extent Safdie's Habitat in Montreal. Correa first tried these ideas with the Cosmopolis Apartments in 1958 and again later with the Boyce Houses of 1962, but it was not until the 1970s that he was able to realise these ideas in an actual project, i.e., Kanchanjunga. These explorations stand as yet another example of the architect's vast spectrum of interests.

[1] Sereyni, Peter, "Charles Correa," (book review), *Journal of Arts and Ideas*, India, April-June, 1984, p. 84.
[2] Correa, C.M., *The New Landscape*, Book Society of India, 1985, p. 56

Planning for Bombay

1964–

by Charles Correa

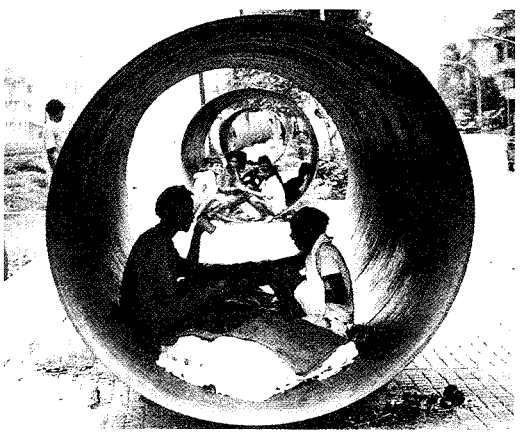
The scale of growth

By the year 2000, there will be almost 50 cities in the world each with over 15 million inhabitants: 40 will be in the Third World, most of these in Asia; and one of them will be Bombay. Between 1900 and 1940 Bombay's population increased marginally to about 1.8 million. By 1960 it had shot up to 4 million and today it has crossed 9 million.

Mass migration to urban areas is nothing new: European society was similarly restructured between the 17th and 19th centuries. That precedent had one major difference: the Europeans could distribute themselves around the globe — an option not open to Asian countries today. To understand this is to perceive the crucial role which our towns and cities are actually playing: they are substitutes for emigration, functioning as mechanisms for generating employment, marginally in industrial jobs and far more widely in tertiary and bazaar sectors.

By the year 2000, these demographic changes will have begun to stabilise; what we need during the next two decades is a holding action which involves increasing employment and incomes at the village and small town level and stimulating the economic growth of middle-sized towns and cities to act as countermagnets to the big metropolis. Because both these strategies would have a take-off period of at least 10 to 15 years, action must simultaneously be taken to re-structure the existing metropolis so that they can function during this interim period while their growth rate tapers off. If the two strategies fail, it is possible that a city like Bombay will grow into a vast conurbation containing 30 or 40 million by the turn of the century. But even if they are successful there still remains the problem of making Bombay function with as many as 15 million inhabitants.

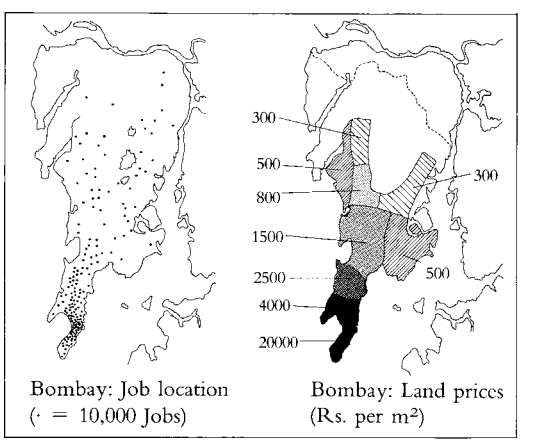
Like many seaports the city itself is one long breakwater, protecting the harbour from the open sea. This linear structure provided a natural functional framework which sufficed up to World War II. Since then, population increases have stretched this structure further and further, until now, like a rubber band, it is ready to snap.



Life in a drain pipe.

North-south traffic.

At the southernmost tip of the island lies an enormous complex of government and commercial offices — the financial centre of the entire nation. These offices and the vast textile mills next to them daily trigger massive flows of traffic; southward in the morning, northward in the evening. To avoid this gruelling commuting (up to 4 hours each way) people try to live as close as possible to the southern end in squatter settlements or in overcrowded slums, 10 to 15 in a room.



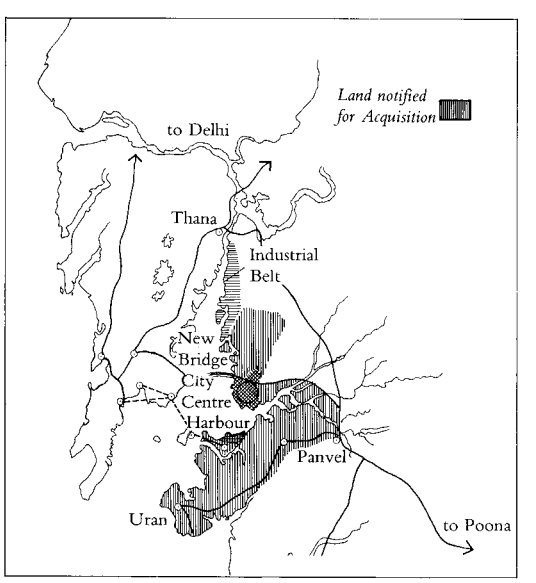
Bombay: Job location (· = 10,000 Jobs)

Bombay: Land prices (Rs. per m²)

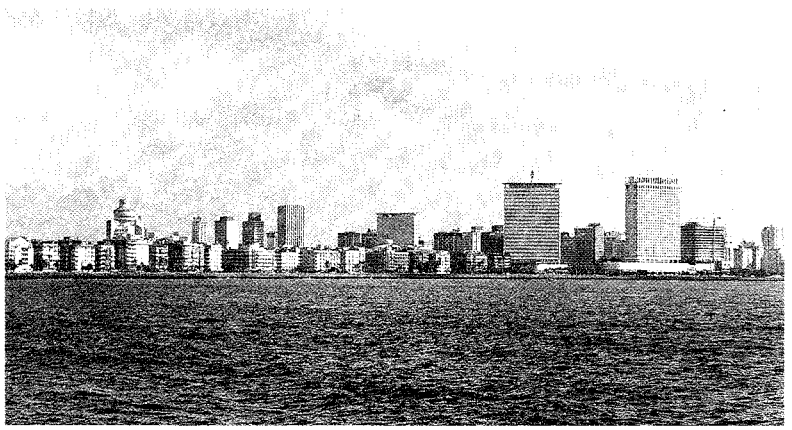
Restructuring the city

There is a brutal mismatch between the city's structure and the load it must carry today. Like many a Third World city, the holding capacity of Bombay has to be drastically increased. This was the basis of the proposals which colleagues, Pravina Mehta, Shirish Patel and I made to the Government in 1964.

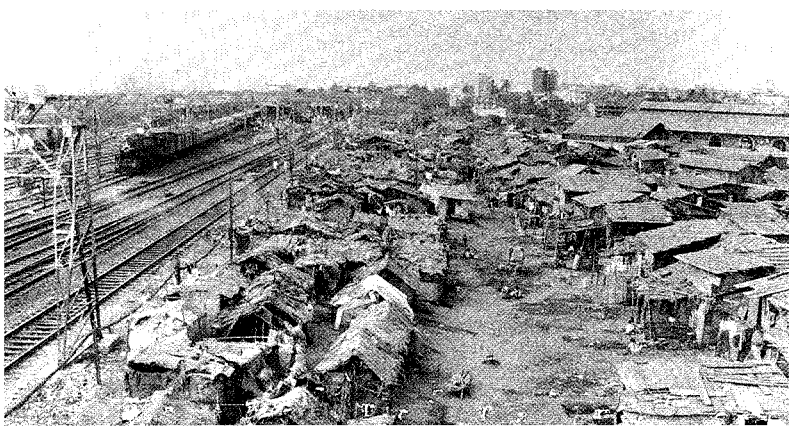
In essence, we suggested opening up new growth centres across the harbour so that Bombay's north-south linear structure would metamorphosise into a circular polycentred one. A number of significant — but



Bombay after CIDCO.



Bombay's high-rise skyline.

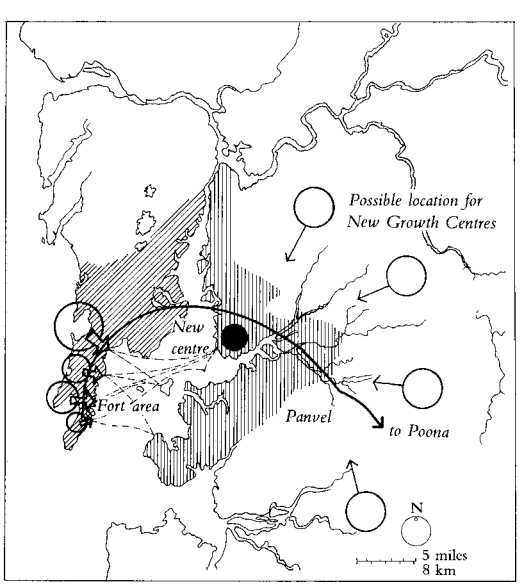


Squatters along the railway lines — access to jobs.

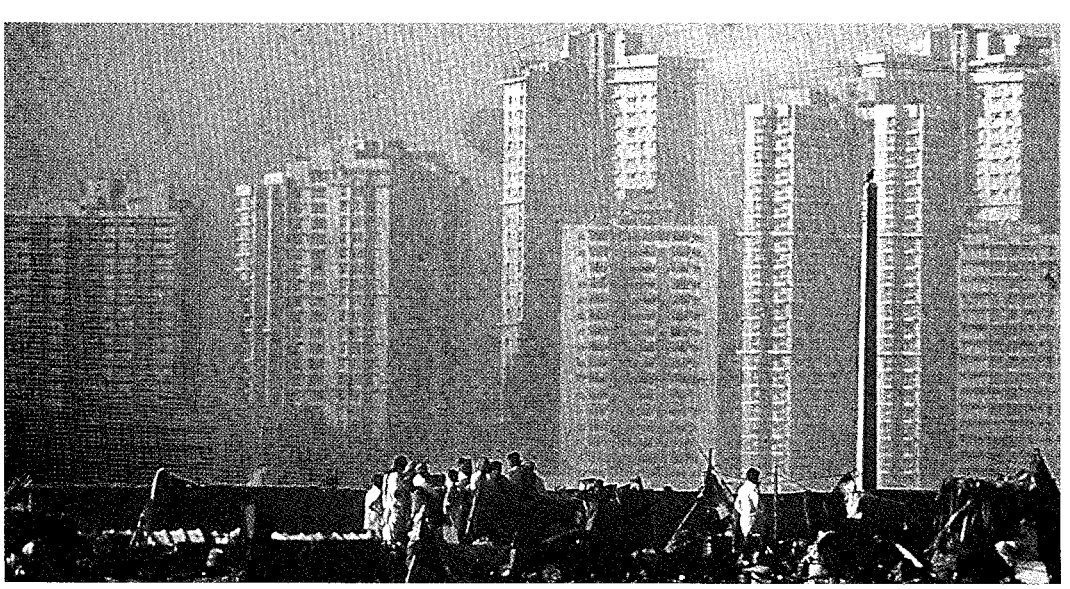
as yet unrelated — locational decisions had already been taken involving transport, industry and other ingredients of the urban growth equation. Were the authorities to act decisively and add the governmental/commercial function, they might well be able, through the interaction of these inputs, to generate a new urban centre on a scale commensurate with Bombay's growth. Furthermore through public ownership of the land, a cash flow could be set up using the enhanced value of developed acreage to help finance service infrastructure, public transport and housing for the poor. Also, generating a new pattern of jobs (and redeploying some of the existing ones) could also serve to change "desire lines" across the city, thus optimising the load on the transport network.

In short *we would be trying to use this new growth itself to re-structure the city*, taking the opportunity to — in Buckminster Fuller's ineffable phrase — "re-arrange the scenery". This is the real advantage of Asian cities of today. Hopefully, many of them will be able to use this quantum jump to their permanent advantage.

In 1970, the Government of Maharashtra accepted the basic planning concepts and notified 55,000 acres of land for acquisition. It set up CIDCO (the City and Industrial Development Corporation) to design and develop the new city called New Bombay. Since the metropolitan region was expected to grow by about 4 million between 1970 and 1985, it has estimated that about half would locate in the new city.



Opening up the hinterland.



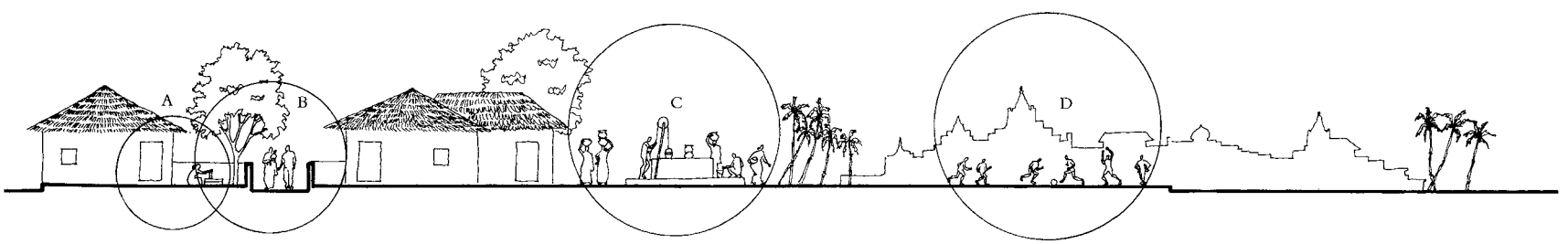
Squatters and the mythical city.

A. Courtyard

B. Doorstep

C. Water tap

D. Community space



Hierarchy of spaces.

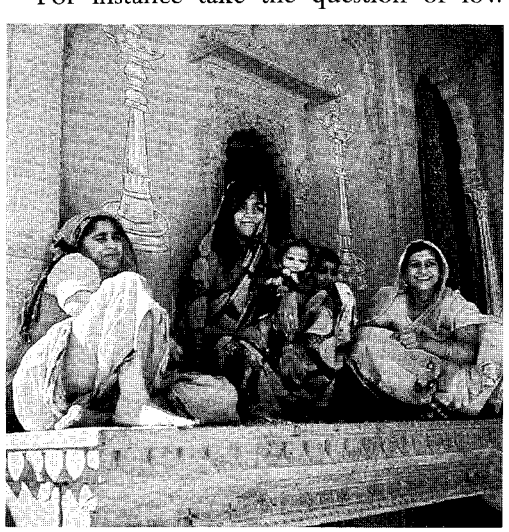
Arranging the scenery

Working as Chief Architect to CIDCO (from 1970 to 1974) gave me an opportunity for a comprehensive overview on many problems of which I had only fragments — problems which seem insoluble viewed in isolation, but which suggest a totally different strategy when examined in the context of an entire city.

For instance take the question of low-income housing. Living in an Asian city involves much more than the use of a small room. Such a cell is only one element in a whole system of spaces people need in order to live. This system is generally hierarchical consisting of four major elements:

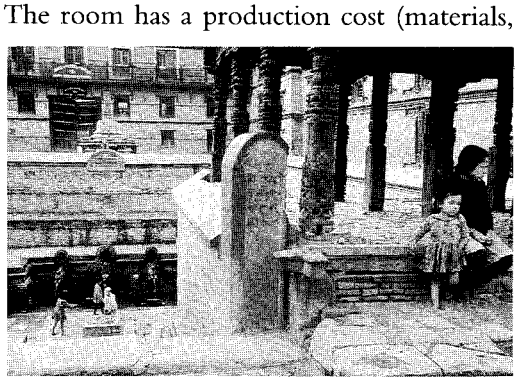
- Space needed by the family for exclusively private use such as cooking and sleeping.
- Areas of intimate contact i.e. the front doorstep where children play, you meet your neighbour, etc.
- Neighbourhood places e.g. the city water-tap where you become part of your community.
- The principal urban area e.g. the *maidan* (open space) used by the whole city.

The most important characteristic of the system is that each element can consist of either covered or open-to-sky space which is of crucial significance to Asian countries, since almost all of them are located in warm climates where a number of essential activities take place outdoors. In the case of Bombay, we estimate that about 75% of these essential functions (e.g. cooking, sleeping, entertaining friends) can occur in a private courtyard for at least 70% of the year. The room has a production cost (materials,



Open-to-sky extensions to the home.

Public to private space: a house in Rajasthan.



Community space in Nepal.

etc.) and so does the courtyard (land prices, city services, etc.): the trade-off between the two determines the optimum pattern of housing. This underlines a cardinal principal: that in a warm climate — like steel and cement — space itself can be used as a resource.

To identify the spatial hierarchy (which varies with the cultural/climatic context) and understand the nature of these trade-offs is the first step towards providing economical housing. Without this one is in grave danger of formulating the wrong question. This is why many attempts at low-cost housing perceive it only as a simplistic question of trying to pile up as many dwelling units as possible on a given site, without any concern for the other spaces involved in the system. Result: the desperate effort of the poor trying to live in a context totally unrelated to their needs.

The situation is even more tragic if one views it from the perspective of the overall city. In most metropolii around the world only about one-third of land is devoted to residential use. In fact, the building plots themselves cover less than 20% of the overall area. We found that in New Bombay, if we doubled the number of units on each site, we would not be saving much land for the city. On the other hand, if we halved it, the city would increase only marginally. But — and this is the heart of the matter — would not these variations in residential densities make a decisive difference to the cost and the mode of constructing the dwelling units?

In most Asian countries, the specifications for 1, 5 and 20 storeys vary dramatically. A multi-storeyed building must of necessity be built of brick and concrete for structural strength. In contrast, ground floor structures can be built (at a mere fraction of the cost) of a wide variety of materials — such as earthern brick, or mud and bamboo.

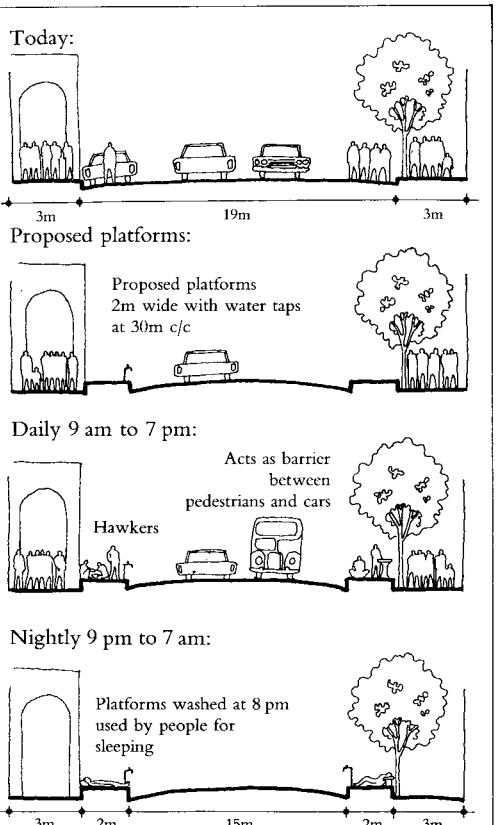
Hawkers/Pavements

In the crowded centres of Indian cities, pavements are used intensively: during the day they are crowded with hawkers so that pedestrians are forced onto the road blocking the traffic lanes. As evening falls, the hawkers gather their possessions and go home — to be replaced by people unfolding their beddings for a night's rest.

These night people are not pavement-dwellers (who are another group altogether), but mostly domestic servants and office boys who have to share a room in their places of work where they keep their belongings and use city pavements for sleeping. This allows them to economise on their living expenses. Furthermore on hot sultry nights, sleeping outdoors is a more attractive proposition than the crowded airless room: that they have to do so under unhygienic conditions with the public walking right amongst (and over) them is disturbing.

This project in 1968 recommended to the Bombay Municipal Corporation an experimental modification in one of the city's principal streets (Dadabhai Naoroji Road) in order to deal with both the hawkers during the day and the sleepers at night. What was proposed was a line of platforms 2 metres wide and 0.6 metre high, with water taps placed at approximately intervals of 30 metres.

During the day these platforms would be used by the hawkers — thus clearing the pavements and the arcades for pedestrians. (The platform would also act as a safety barrier between pedestrians and vehicular traffic). In the evening, at about sunset, the taps would be turned on and the platforms washed clean by municipal sweepers. They would then provide convenient *otlas* (platforms) for people to sleep — out of the path of any pedestrians walking home at night.



Before the hawkers arrive.

Around noon.

Mobility and Jobs

The problem of increasing city size is also one of servicing the larger area: will not lowering residential densities increase disproportionately the travel time and cost of a mass transport system? After all, the poor aren't pouring into Bombay for houses — they are looking for jobs. Giving them housing far away from the city isn't much help; these are merely ghettos of cheap labour, at the mercy of such local industry as may exist.

A mass transport system is, by definition, a linear element. It only becomes viable in the context of a land-use plan that develops corridors of high density demand. This is why a grid plan (e.g. Chandigarh) is difficult to service with public transport. On the other hand, a linear pattern creates a corridor of demand and thus an efficient bus system.

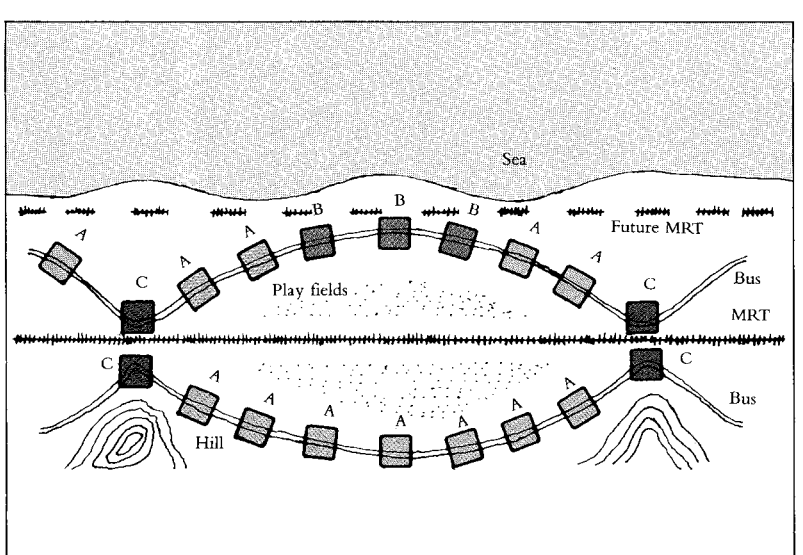
As traffic grows, primary MRT (Mass Rapid Transit), e.g. a train becomes necessary. To install a track down the centre of the development involves reserving land — which is difficult. Keeping the MRT alignment outside the system is better, since the train stations occur only every fourth or fifth sector. In order to avoid the somewhat devious train alignment, the pattern is reversed with a bus line which meanders.

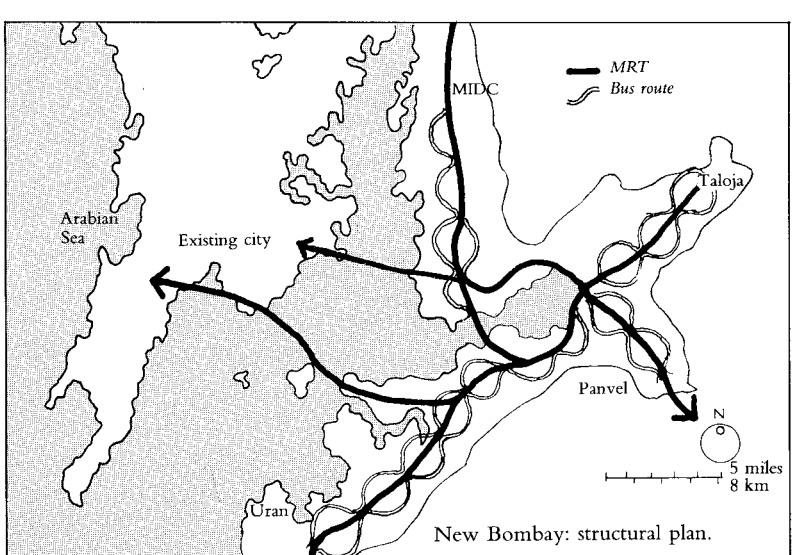
This is how the system grows: we start with a bus line generating a series of sectors of approximately equal importance. Let's call them Type A. Perhaps one, because of its particular location grows in importance; let's call it Type B. As the traffic grows and the primary MRT is installed, the Interchanges generate new activity, upgrading these particular sectors (Type C). With time, a second bus line can be installed, opening up a whole new section of the hinterland. (The system shown diagrammatically is on a typical portion of the New Bombay site which runs between hills and water.) In future, should densities and traffic grow beyond expectation, an additional primary MRT can be installed. This upgrades the importance of some Type A sectors which then provide an opportunity for locating new social infrastructure and other facilities for the additional population.

The structural plan for New Bombay with three such linear spines is arranged in a pinwheel around the CBD (Central Business District) at one end and into the regional transport network at the other, anchoring the new city into the surrounding region.

Thus starting with a simple bus in mixed traffic, we gradually build up to a complex network involving trains on four or more tracks, without at any time transgressing the cost/capacity constraints. Even if some subsidy is involved this is really an indirect subsidy on housing; a far more effective strategy than directly subsidising housing, which often leads (at least under Indian conditions) to an illegal transfer of these tenements, the allottee preferring to cash in on the actual market value of the unit and move back onto the pavements.

In effect, the MRT is used to increase the supply of urban land at a rate commensurate with the demand — thus maintaining residential densities at the optimal levels which generate the pattern of low-rise housing discussed earlier. (The analogue to the human body is tempting; we know we are in trouble when our temperature crosses 37°C; perhaps density levels are a similar indicator for cities.)



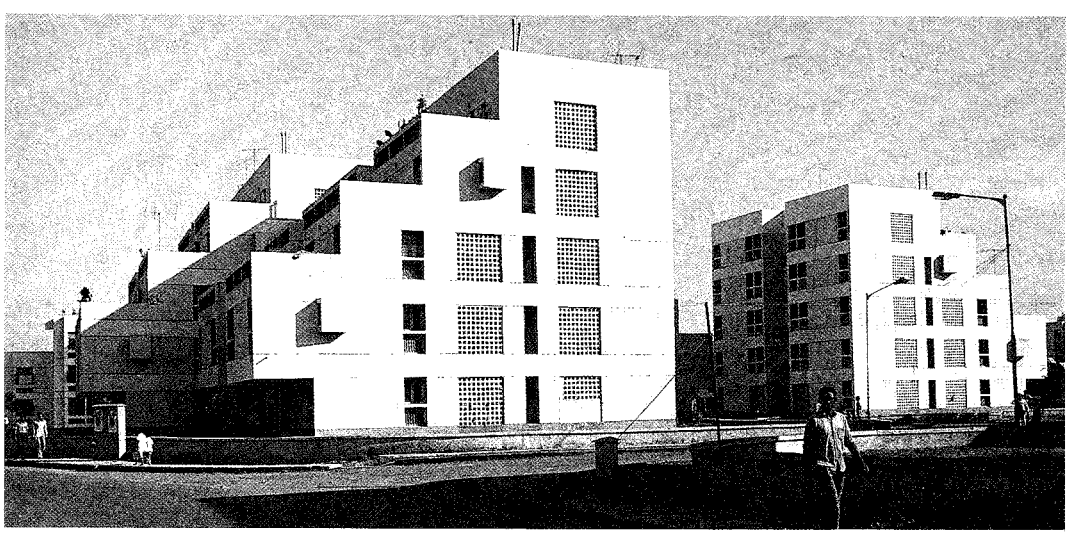


New Bombay: structural plan.

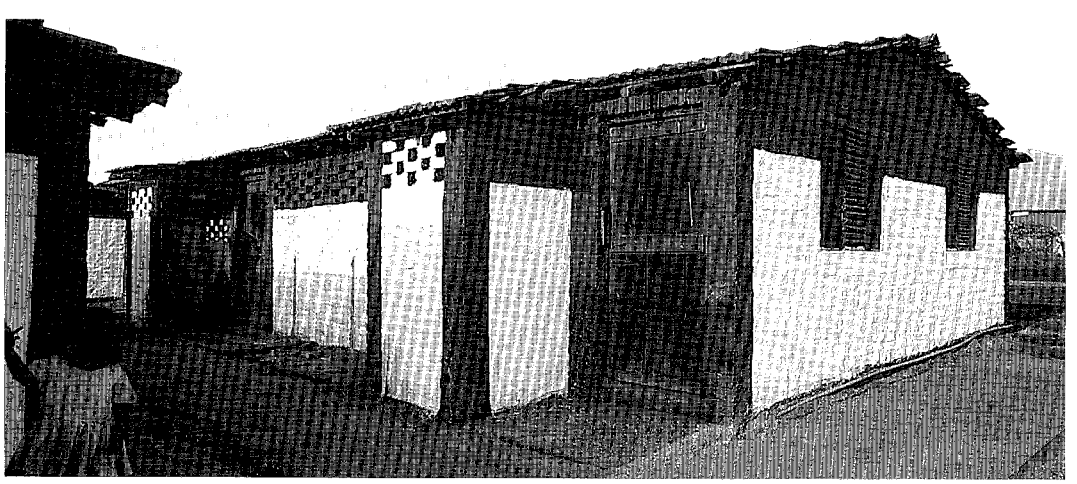
The New Landscape

The year 2000 is not far away. As we approach the start of the next century, one begins to suspect that the current pessimism may prove to be unnecessarily alarmist. Answers, like pieces of a jig-saw puzzle, are surfacing more and more frequently. Inexorably, they are beginning to generate a new landscape.

Often we miss these fragments because our view of the Third World is a limited and (unknowingly) egocentric one. For instance, consider one of the miraculous and largely uncelebrated plus-points of most Asian cities: despite poverty and exploitation, the people of Asia — as social and human entities — are still largely intact. This is a factor of great importance to their future development. In the eyes of the "haves" the squatter struggling to shelter his family is an anti-social element. From just about any other viewpoint, his endeavour is as marvellous, intuitive and socially-positive as a bird building a nest. Compare the phenomenon he represents with the muggings and the meaningless slayings of affluent cities.



Middle-income housing with open-to-sky terraces.

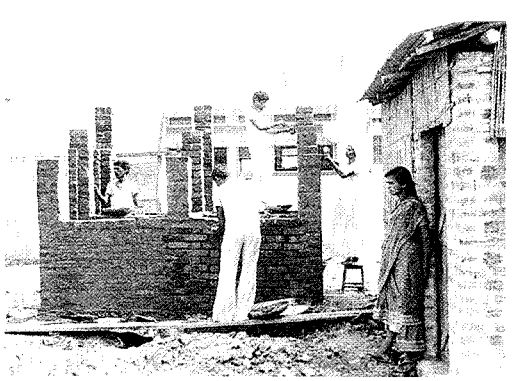


Low-cost housing.

Or consider the enormous inventiveness — the incredible handicraft — of people, for everything from decorating a bullock-cart to building a house. If we look at all the major concerns of humanists and environmentalists today: balanced eco-systems, re-cycling of waste products, people's participation, appropriate life-styles, indigenous technology, etc. we find the people of Asia already have it all. From the Polynesian islands, to the Yemeni towns, to the jungles of Bangladesh, for thousands of years they have been building marvellous (low-energy, high-visual) shelter. In fact that is the wonderful thing about Asia: there is no shortage of housing. What there is a shortage of is the urban context in which these solutions are viable.

That then is the real task and responsibility of the Asian architect: to help generate this urban context.

Personalising one's habitat.



Self-help housing in New Bombay.

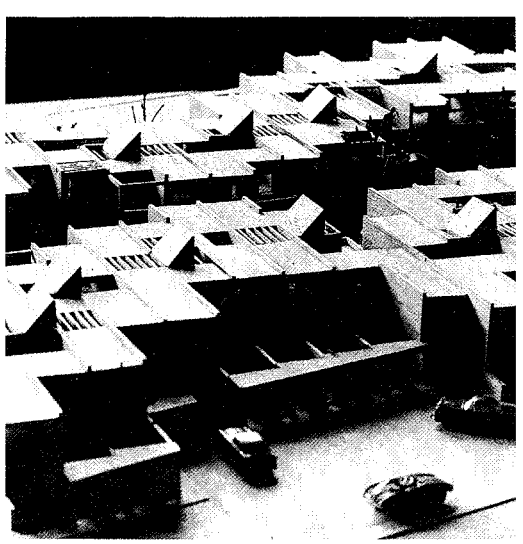
PREVI Experimental Housing

Lima, Peru
1969–73

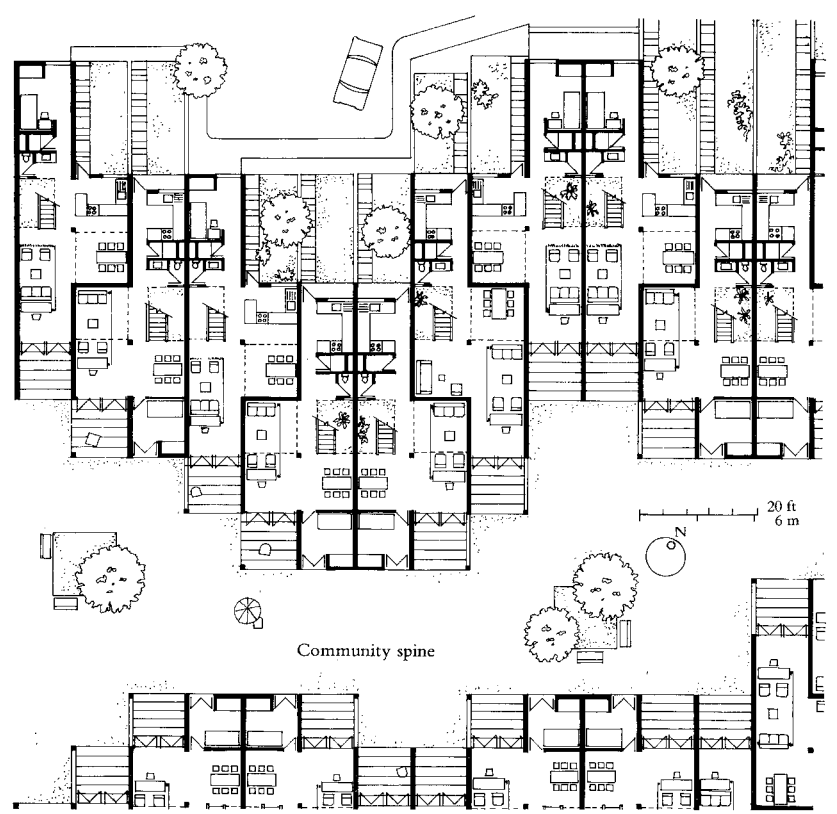
The experimental housing project PREVI (Proyecto Experimental de Vivienda) started as a competition aimed at obtaining approaches and designs to help evolve a new housing policy for Peru. The competition was sponsored by the Government of Peru and the United Nations in 1969. The brief, to design for a community of 1500 families, (initiated by the British architect Peter Land), was to design high-density low-cost housing units in conjunction with community facilities such as schools, sports centres, services and infrastructure. Pedestrian and vehicular traffic was to be separated and the houses to be designed as clusters. The housing units themselves were to be expandable to eventually accommodate up to eight children and three adults.

Charles Correa was one of thirteen international participants invited to submit entries (the others were: Kitutake, Kurokawa, Maki from Japan; Center for Environmental Structure — Alexander, Hirshen, Ishikawa, Coffin, Angel — of the USA; Korhonen from Finland; Esquerra, Saenz, Urdaneta, Samper from Colombia; Svensson from Denmark; Hanson and Hatloy from Poland; Ohl of Germany; Atelier 5 of Switzerland; Onzonoy, Castro from Spain; Candilis, Josic, Woods of France; Stirling from the UK and Van Eyck from Holland). The jury did not come to a unanimous decision; there was a majority and minority choice. It was decided to build 12 to 20 houses of each participant's design. The individual schemes were never realised in terms of site planning or community design and most of the public amenities were not built. Many of the houses were not occupied until 1976. There were 23 different designs among the 502 units built, with about half by foreign architects.

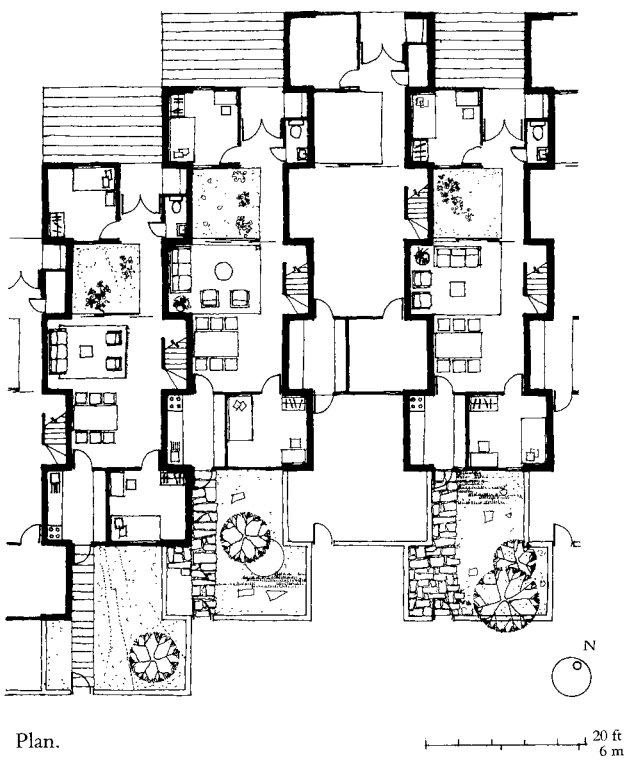
Correa's scheme concentrates on two major design ideas: that of the minimisation of service infrastructure and the use of climate as a temperature regulator. This, in layout terms, resulted in buildings which are staggered along a community spine. The staggered party wall also provided greater earthquake resistance. As in earlier schemes, the unit is a long "tube" of inter-locking row housing. Each house is also incremental. The NNW-SSE orientation of the houses allows the prevailing winds to travel along the axis of each spine. As the breezes pass the porches they are drawn into the houses by a louvred air-scoop over the double-height 6 metres × 6 metres volume within each unit.



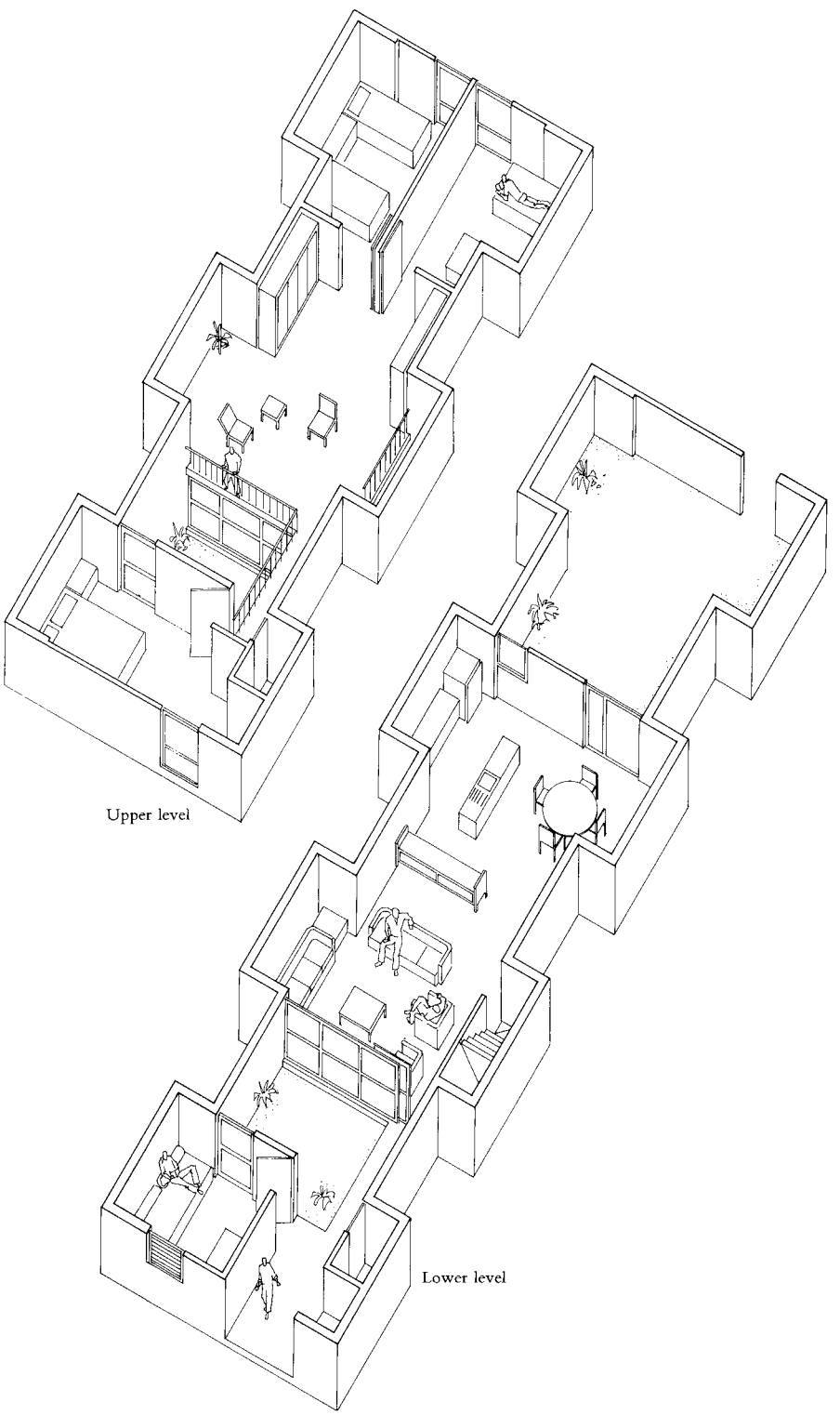
Model of the housing showing the windscoops in each unit and parking along the periphery.



General plan along the community spine.
Right: The central community spine.

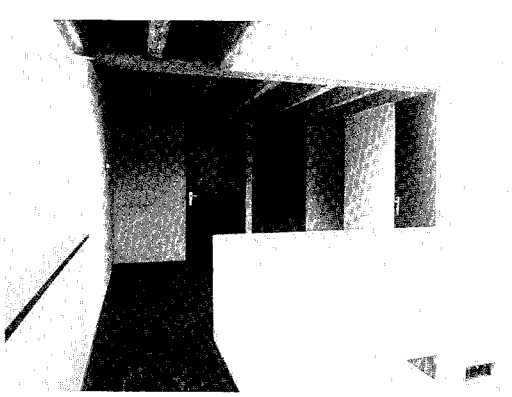


Plan.

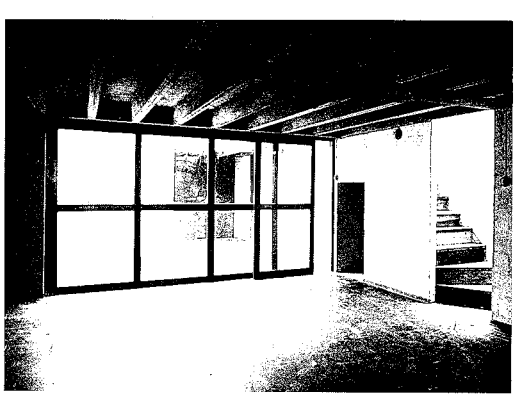


Upper and lower levels of a typical unit.

Backyards along the staggered units.



Terrace level walkway.



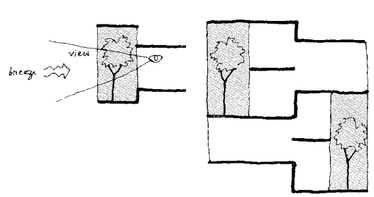
View to an internal court from the living room.

Kanchanjunga Apartments

Cumballa Hill, Bombay
1970–83

In the past twenty years Bombay has become India's New York — the embodiment of modernity, hope and squalor — the mythical city. Land values have increased dramatically and the high-rise solution to housing the developers choice. In 1970 when Correa received this commission to build high-income flats he wondered whether he could use the principles of climate control, zoning of spaces, views, etc., that he had used in housing elsewhere (especially those ideas he had explored in the unbuilt Cosmopolis apartments of 1958, the Boyce Houses of 1962 and the Rallis Apartments of 1973). The challenge was irresistible, and with images of Corbusier's skip-level sections, Safdie's Montreal's Habitat and his own housing experiments, he characteristically plunged into the task. A task which finally resulted in the completed work in 1983; some fifteen years after its inception. This project was done in conjunction with Pravina Mehta as associate architect and Shirish Patel as structural engineer.

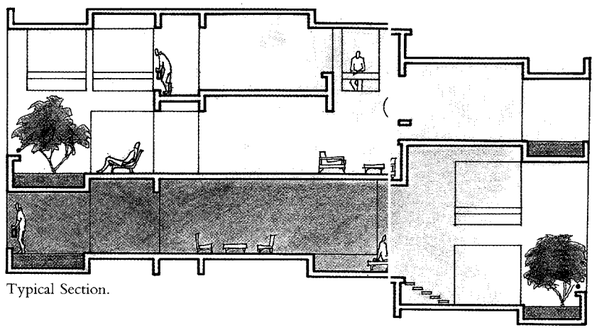
The Bombay climate and location present architects with a contradictory situation: the east-west axis affords the best views (of the Arabian sea to the west and the harbour to the east) and catches all the sea breezes, but also brings into the buildings the hot afternoon sun and the hard monsoon rains. Correa decided to use the organisation of a bungalow of wrapping around the main living spaces a protective verandah. He developed this idea further when he realised that; "another interesting variation on the principle of the bungalow is to turn the verandah or buffer zone into a garden which not only protects the living areas from the sun and rain but actually thrives on them". Combining climatic considerations with that of views he settled upon a configuration of interlocking units which faced east and west.



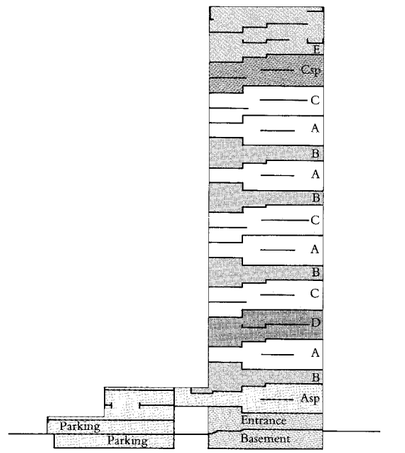
Sketches showing the principle used for the units as a variation of the bungalow plan.

Kanchanjunga (a name taken from the second highest mountain of the Himalayan range) is a condominium of 32 luxury apartments of three to six bedrooms each. The building is 28 storeys (85 metres) high and square in plan: 21 metres × 21 metres. The basic interlock is that of a three and four bedroom apartment with the larger flats formed by the addition of another half level. The structure is built around a central service core which was constructed first. Each of the flats have large usable garden-terraces which have dramatic city views. In section, there is a continuous variation of internal spaces best expressed as shear walls on the north and south elevations of the buildings.

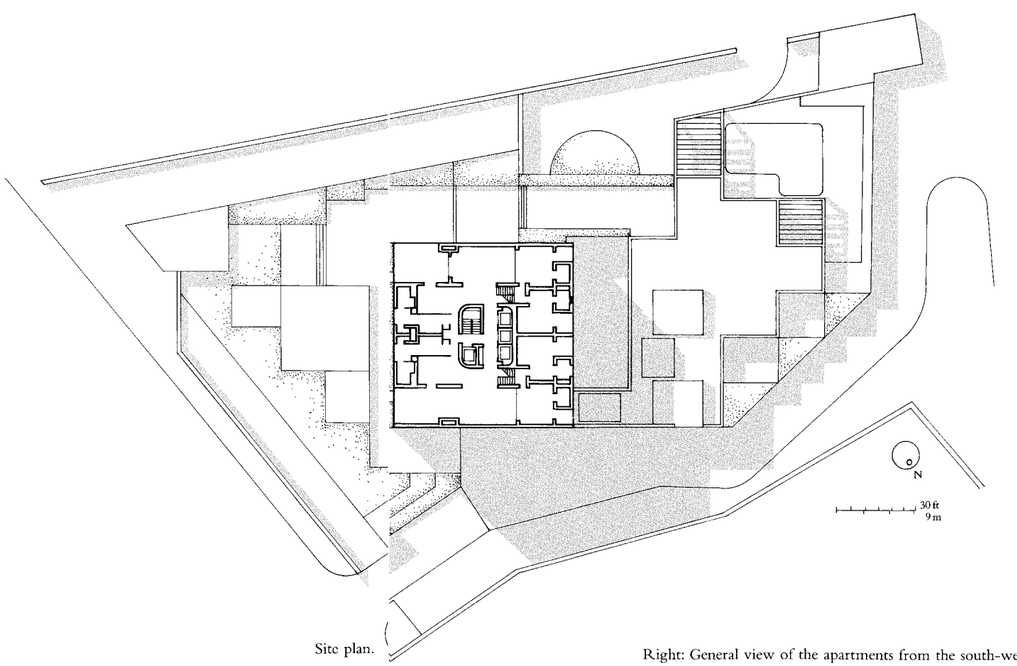
The building is distinctive in Bombay's urban landscape. The apartments are well ventilated and appear to suit the contemporary life-style of the city's well-to-do. The highly articulated and complex interiors do not follow the geometric rhythms of the exterior. The two-floor height terrace acts as a mediator between the internal and external spaces by becoming the ordering element of the building. The cut-out shapes of these terraces on two facades (the other two punctuated by smaller openings) enliven, through the use of coloured tiled walls and brightly painted ceilings, a variety of internal spaces. From within the flats themselves, there are views out from the living and bedrooms and from the terraces the city is overlooked, presenting the habitants with an everchanging panorama.



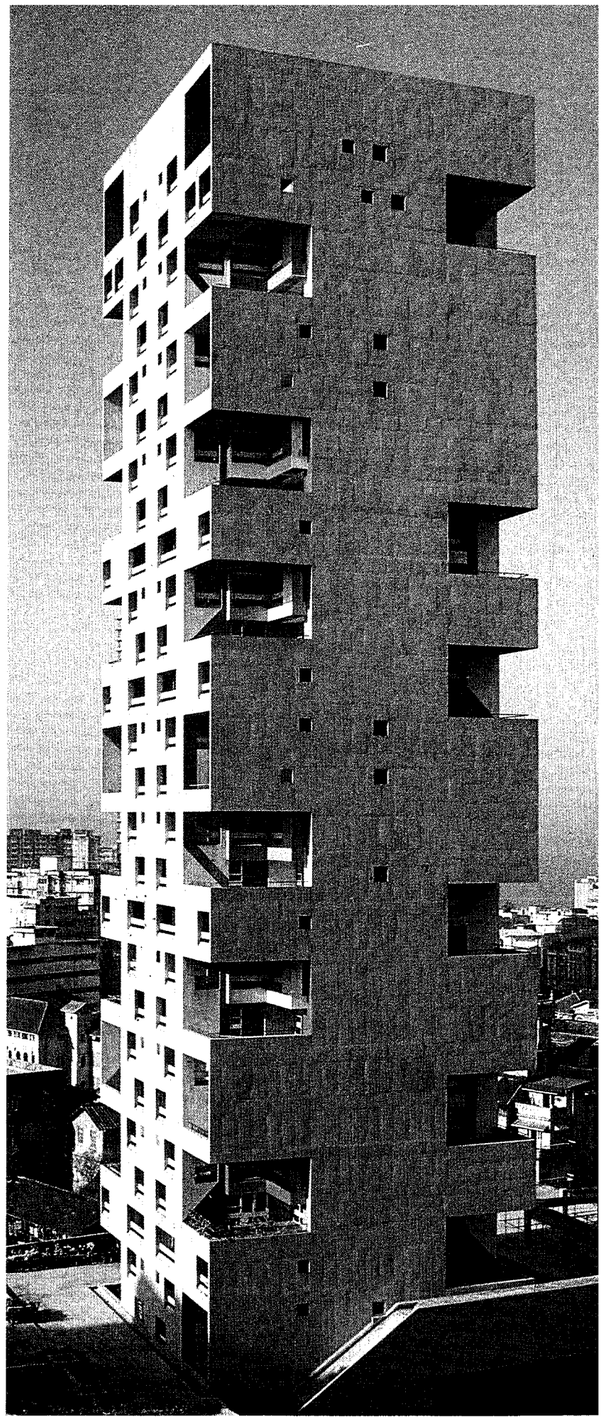
Typical Section.



Section, showing the flats.

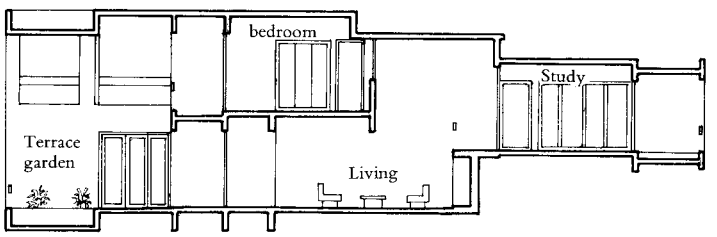


Site plan.

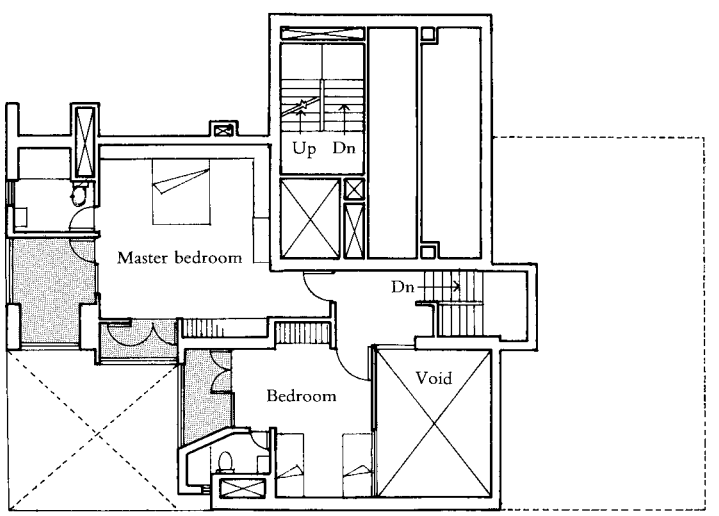


Right: General view of the apartments from the south-west.

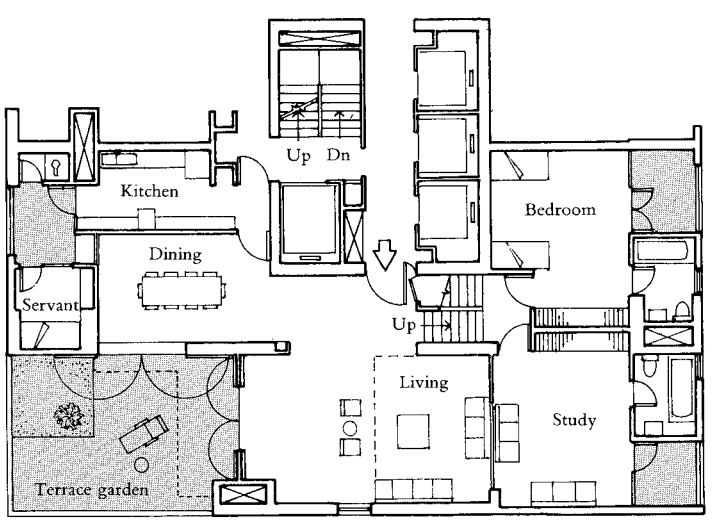
Type A



Section

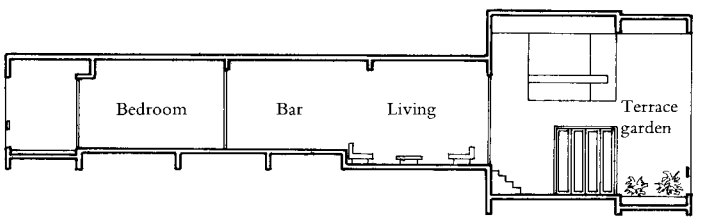


Upper level

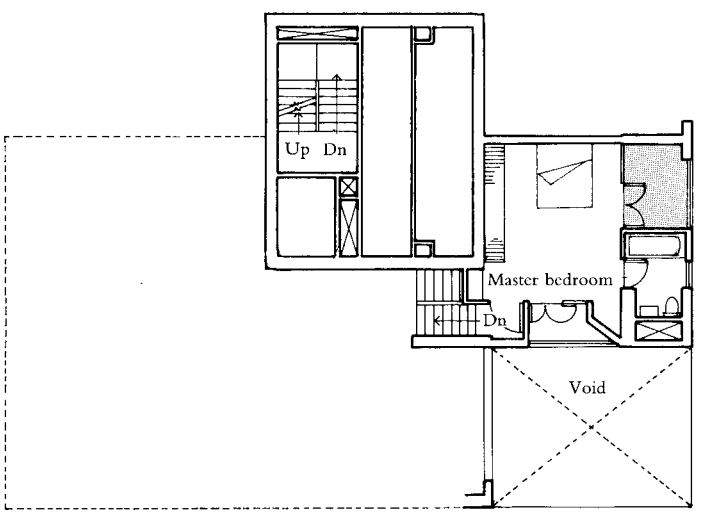


Lower level

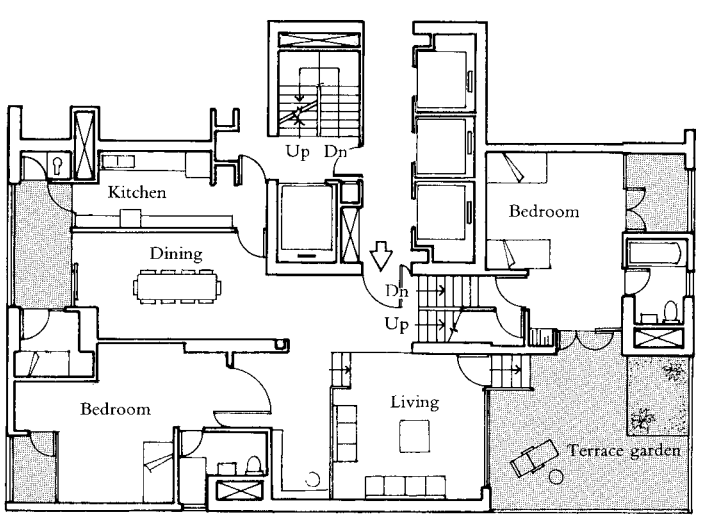
Type B



Section

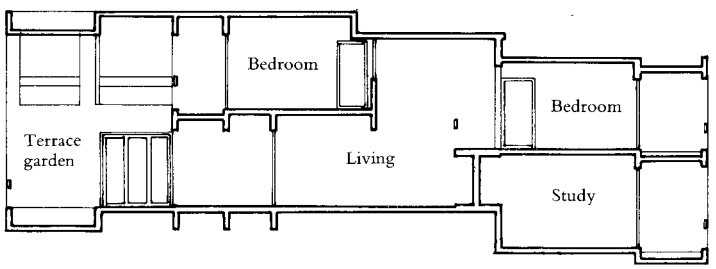


Upper level

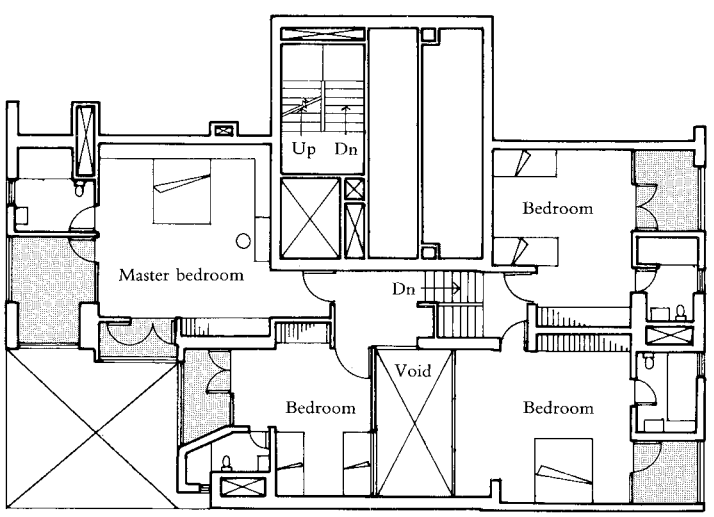


Lower level

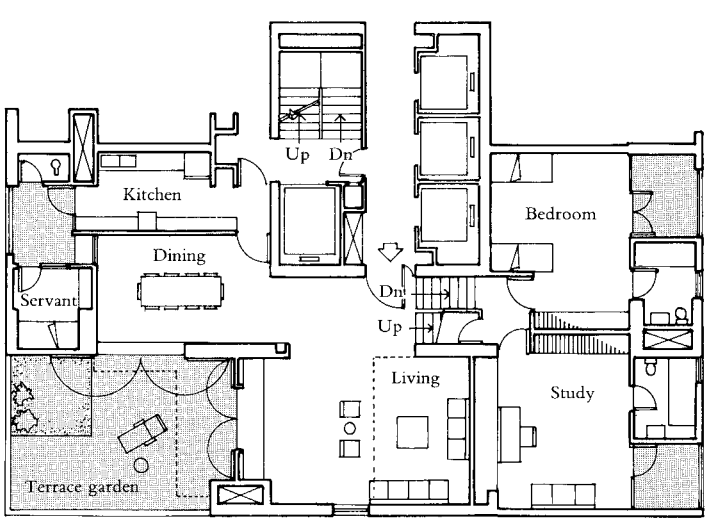
Type C



Section

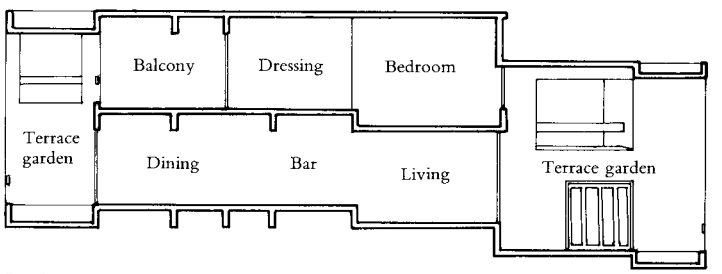


Upper level

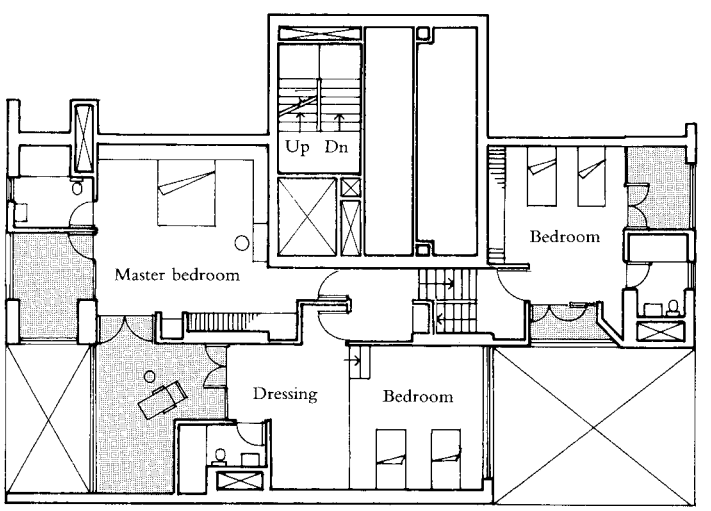


Lower level

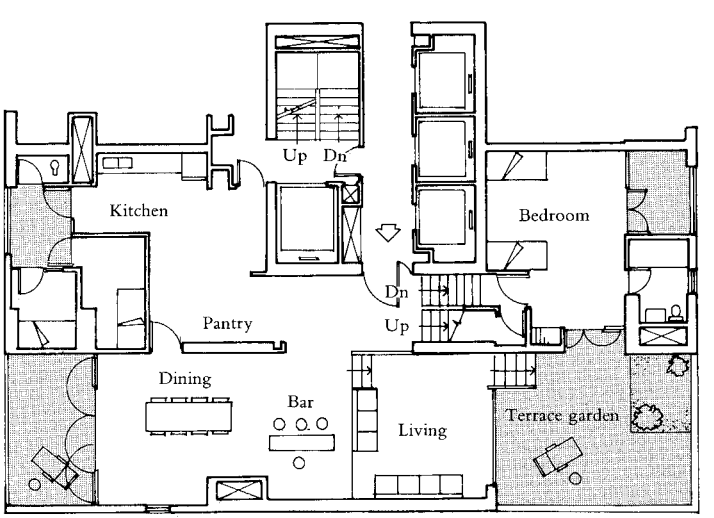
Type D



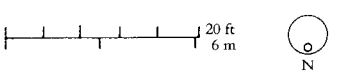
Section

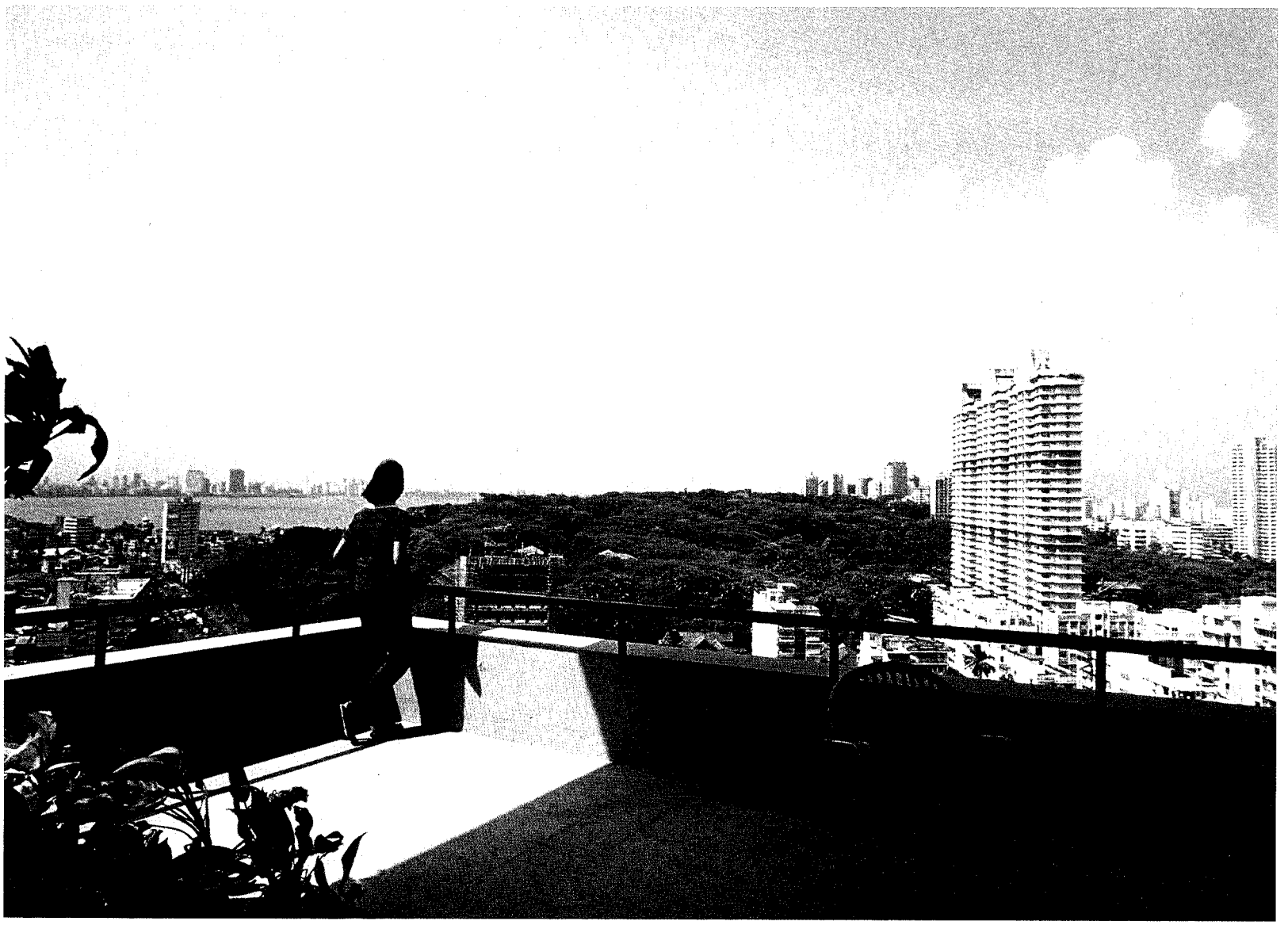


Upper level

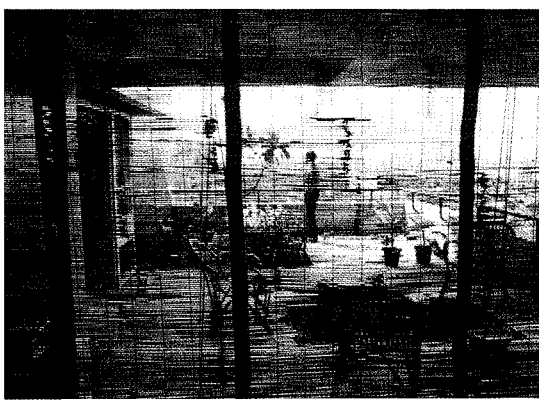


Lower level

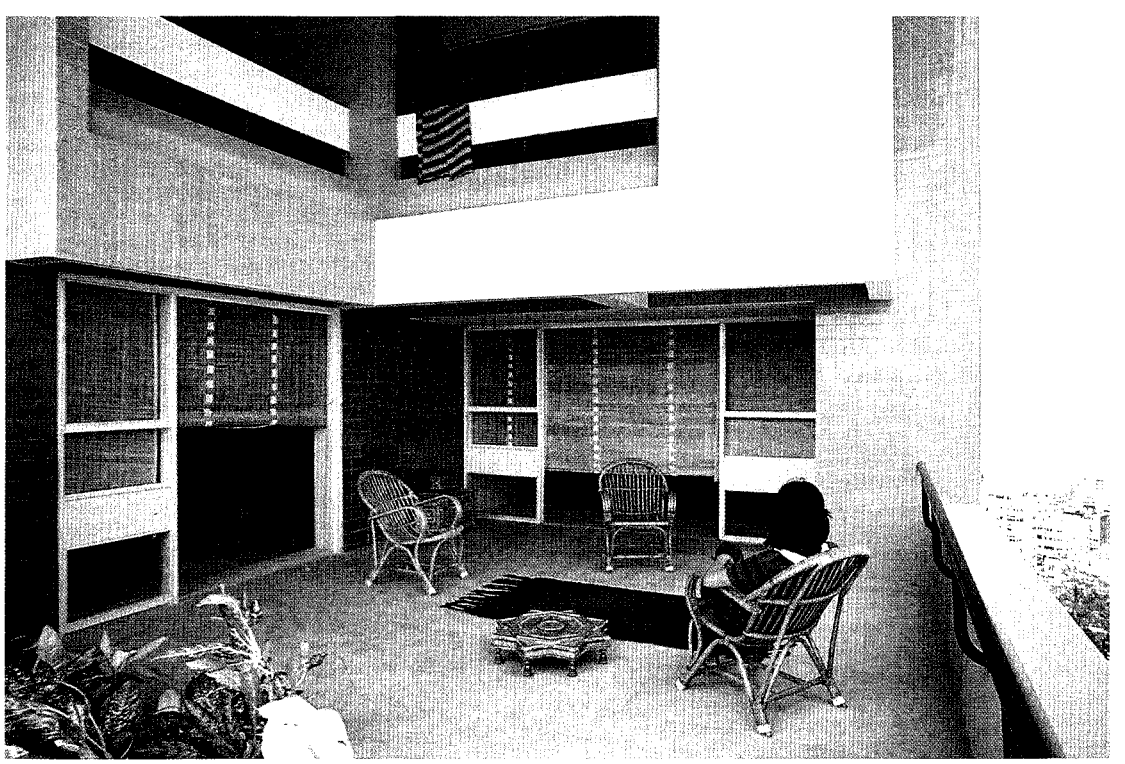




Overlooking the city from a garden-terrace.



Looking at the terrace from a room: the bamboo blinds provide an additional screen to the outside.



On a terrace.

Tara Group Housing

Delhi

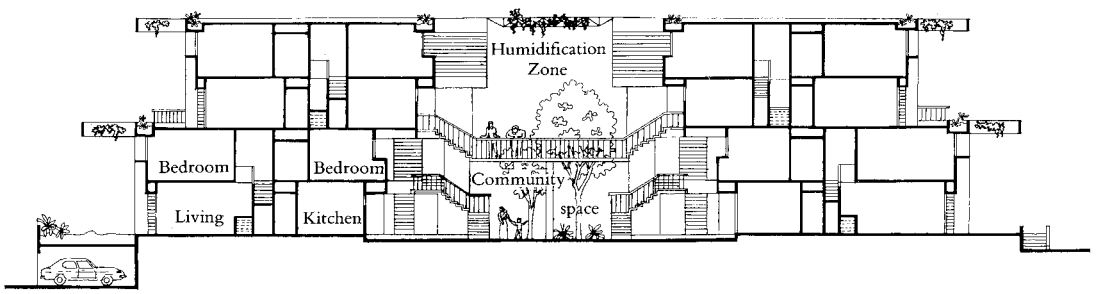
1975–78

The brief for a housing project on the outskirts of Delhi called for two and three bedroom units at a density of 125 units per hectare. Quite often such a brief would result in medium-rise buildings requiring expensive elevators and structures. In order to avoid such a solution this design, for middle income housing, consists of 160 narrow four-storey units, stepped back in section so that the roof of the lower ones form terraces for those on the upper level. The housing is divided into two rows providing a central circulation and community facility space.

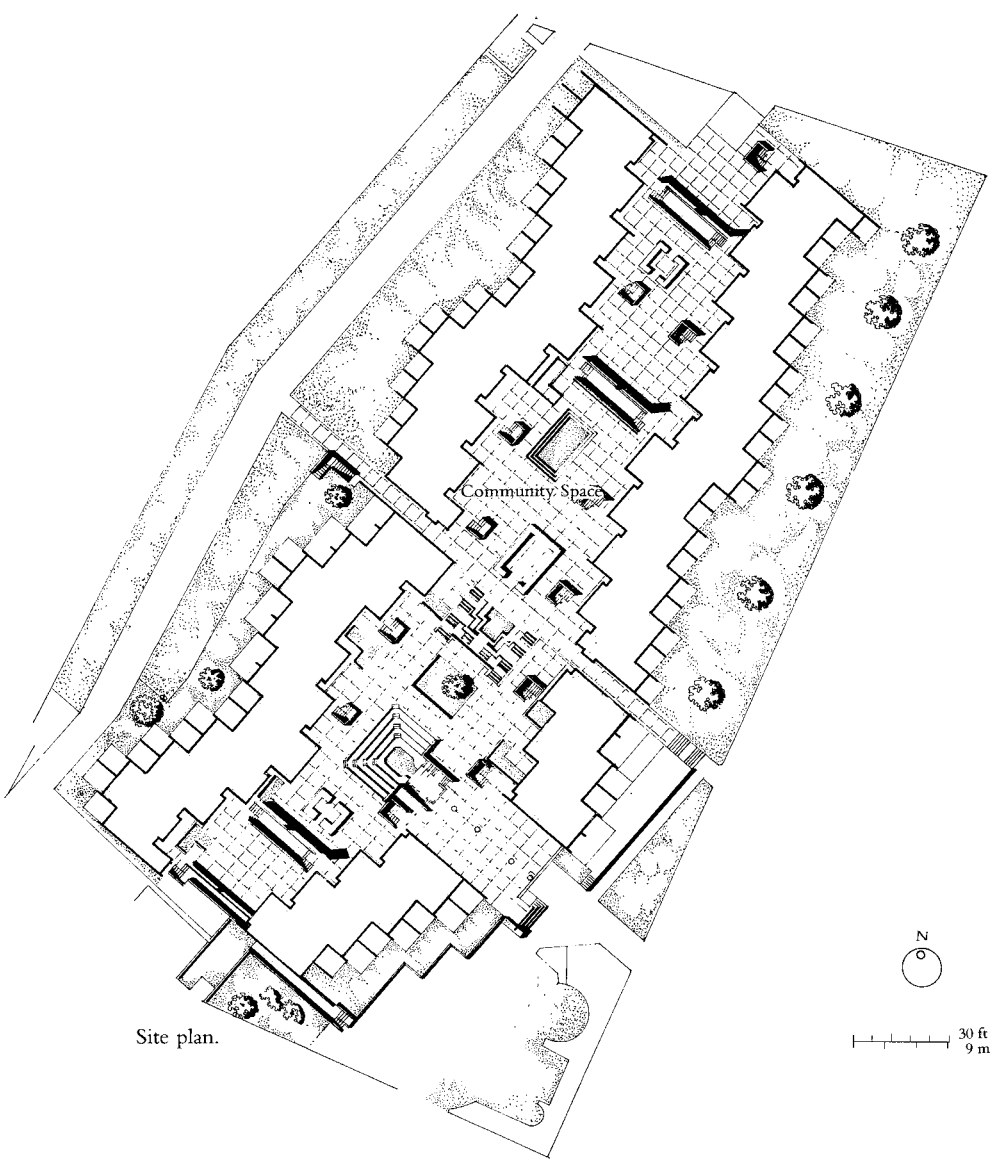
The duplex units are accessed either at ground floor or second floor levels. The two-bedroom flats cover 84 square metres and are 3 metres wide; 6 metres high (on two floors) and 15 metres long. The three bedroom flats are 130 square metres and interlock in a L-shape so that they cover one bay width on one level and two bays on the other. Each unit has 10 square metres of open-to-sky terrace which is partially protected by a pergola for sitting out during the mornings and evenings, and for sleeping out at night.

Stacked as interlocking rows, the units protect each other against the hot dry climate of northern India. The central space is landscaped with lawn, paving, trees and running water which provides some humidity to cool the dry winds.

The parallel party walls, perpendicular to the open community spine, coupled with the staggered units and pergola edge beams, gives the complex a strong sense of light and shadow and articulation of form found in many of the architect's designs. The bands of concrete and panels of exposed brick reveal the structure and act as unifying elements. The portals, overhangs and sharp edges, all give these buildings a feel of belonging to the Indian landscape under a hot sun — a sense of place prevails.

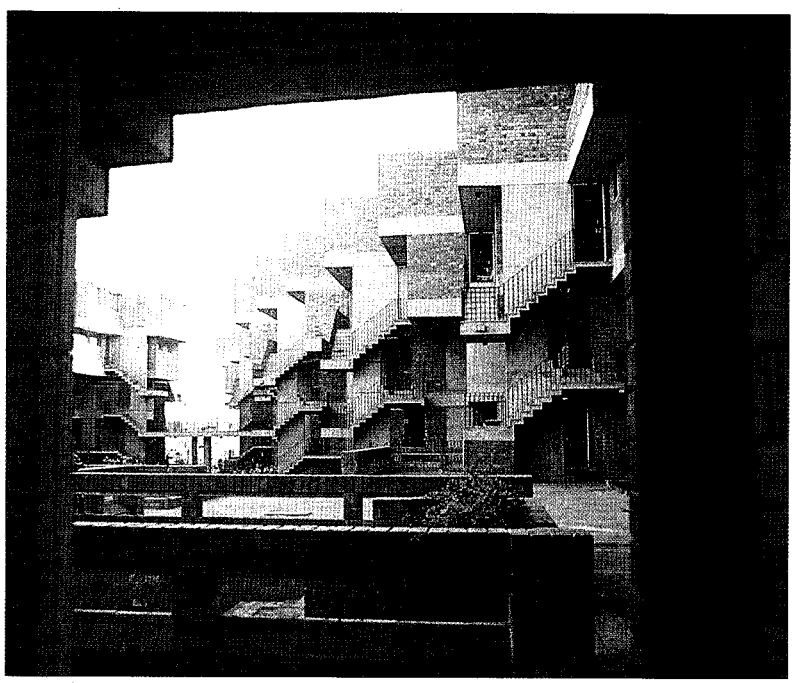


Section.

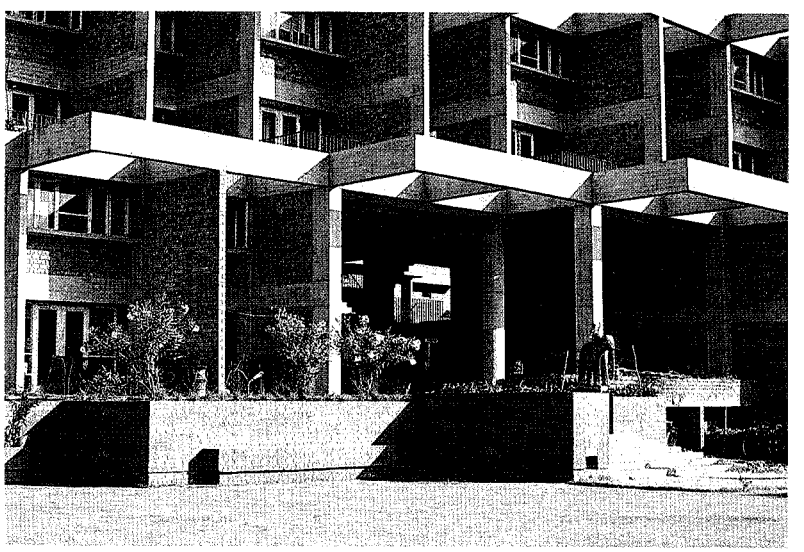


Site plan.

View from the periphery of the site of the terraced flats.

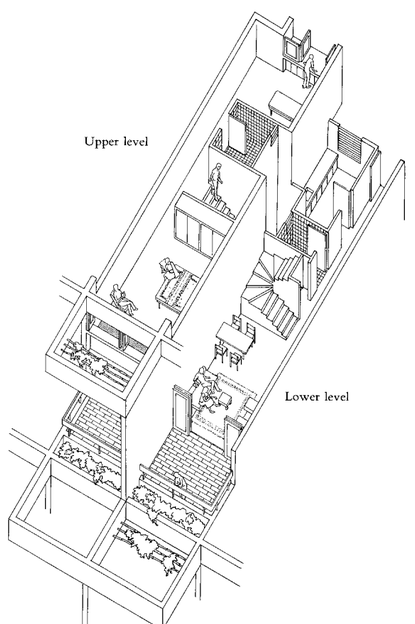


View to the community space.



Terraced gardens defined by the overhead sun-protecting beams.

Living room looking onto an open space.



Axonometric of the interlocking flats.
Left: Stairs leading to an apartment off the community space.

Malabar Cements Township

Kerala
1978–82

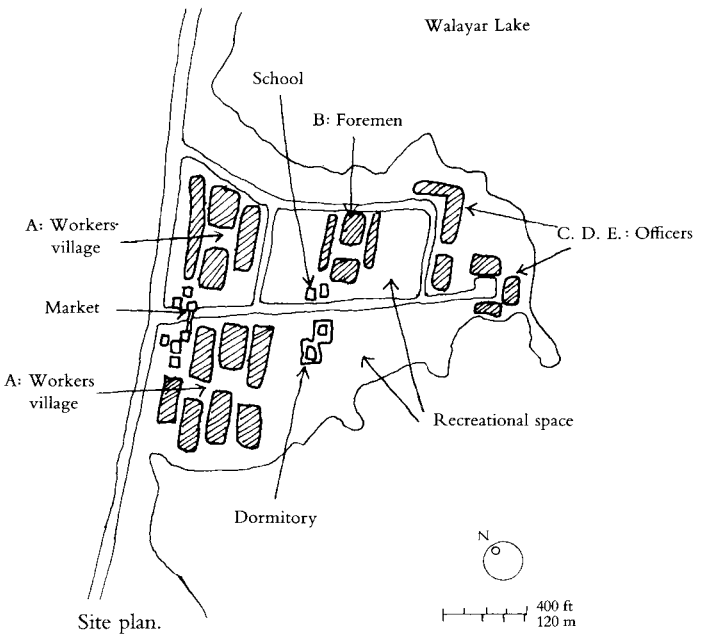
The idea of a "company town" often located in remote areas or urban outskirts, is to provide a self-contained living environment for employees directly connected to the physical production plant.

The Malabar Cements Corporation proved to be an enlightened client which recognised the need for lower-income families to supplement their income by keeping poultry, having kitchen gardens, etc. and insisted that their township should foster such activities. This in 1978 was a viewpoint not shared by most large corporations.

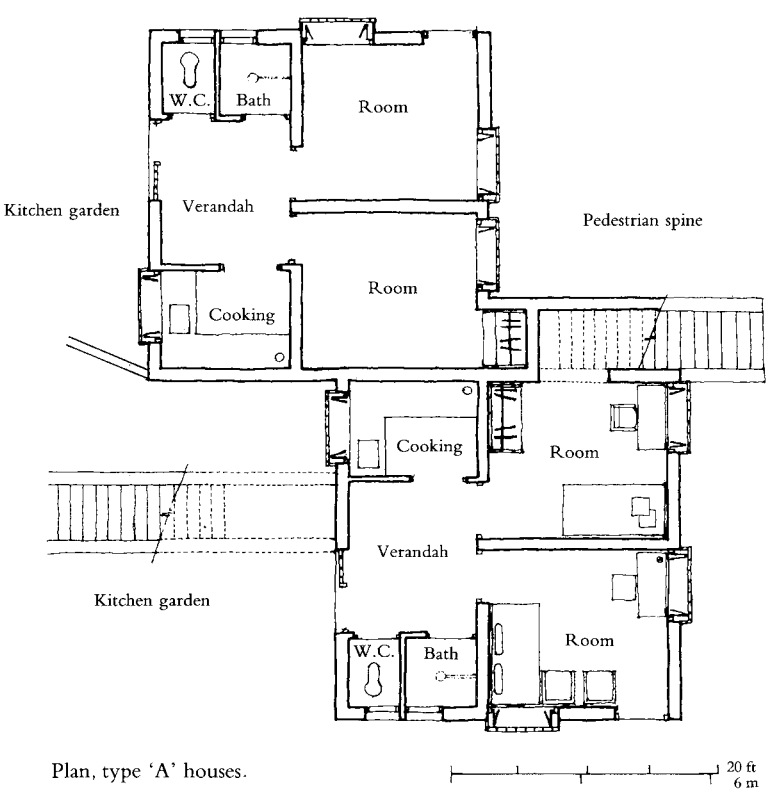
The site selected for the township is an unusually beautiful one: a heavily wooded promontory jutting out into Walayar Lake. The site plan organises some 400 housing units grouped in clusters of twelve along an essentially pedestrian spine. Some parts of the spine are bridged to create larger units and delineate public spaces. The township is served by a simple loop road which is also used to reach picnic spots along the edge of the lake.

There are a number of public facilities. A small market is located at the bus stop near the entrance gate in order to serve both the township residents as well as the general public. There is a school, a club, a guest house and a dormitory for bachelor workers and some community spaces.

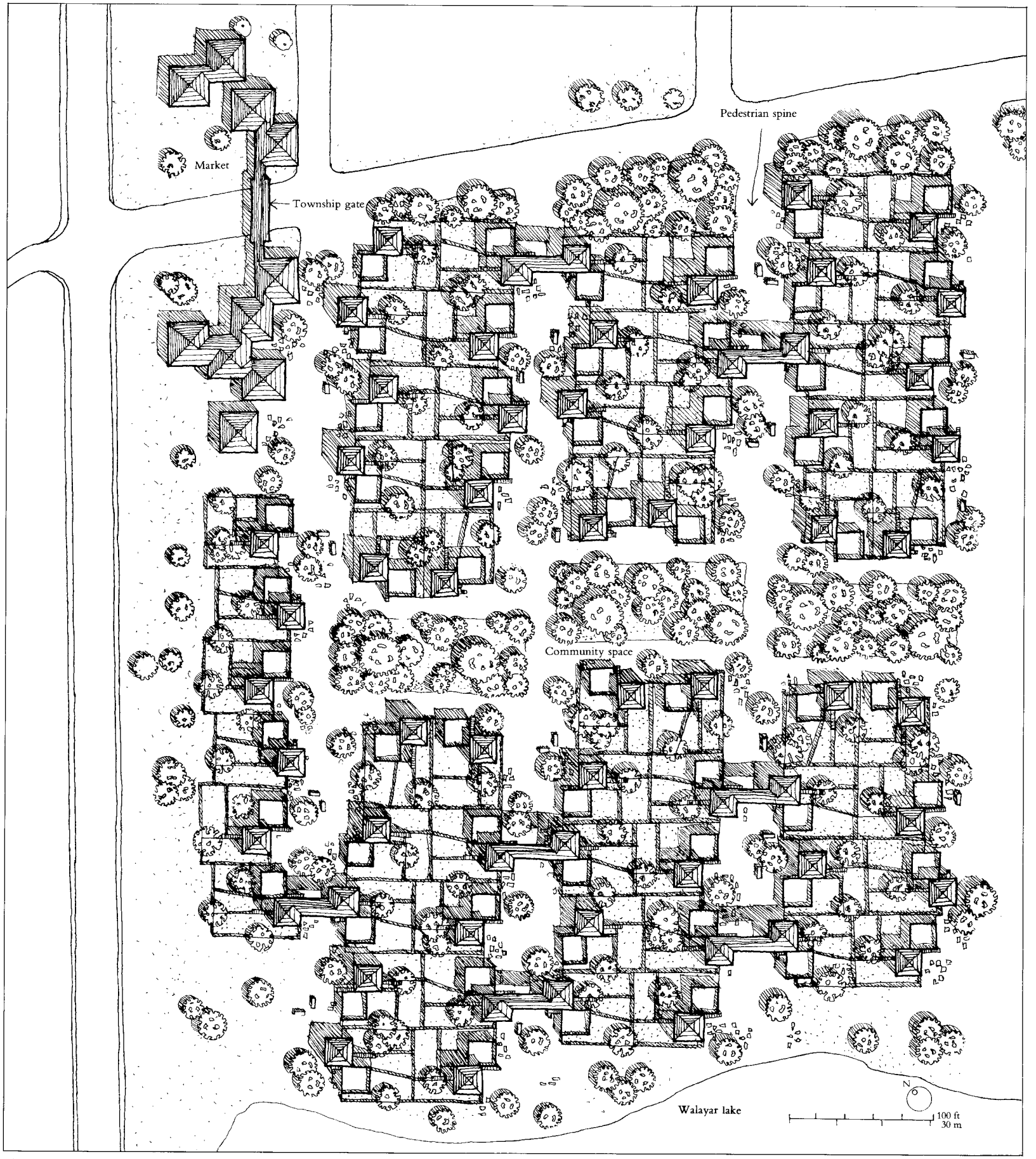
The housing units themselves start with a minimum accommodation of 35 square metres, (A-type) for workers. Each unit has a private open space for at least a kitchen garden — these are grouped in pairs to assist surface drainage and provision of services. A third unit is added at the upper level. This third unit has two open-to-sky spaces: one is at the outdoor terrace at its own level and the other is a kitchen garden on the ground. The larger B-type houses are for foremen and supervisory staff and the C, D, and E-type houses are for officers. The Township was occupied in 1982.



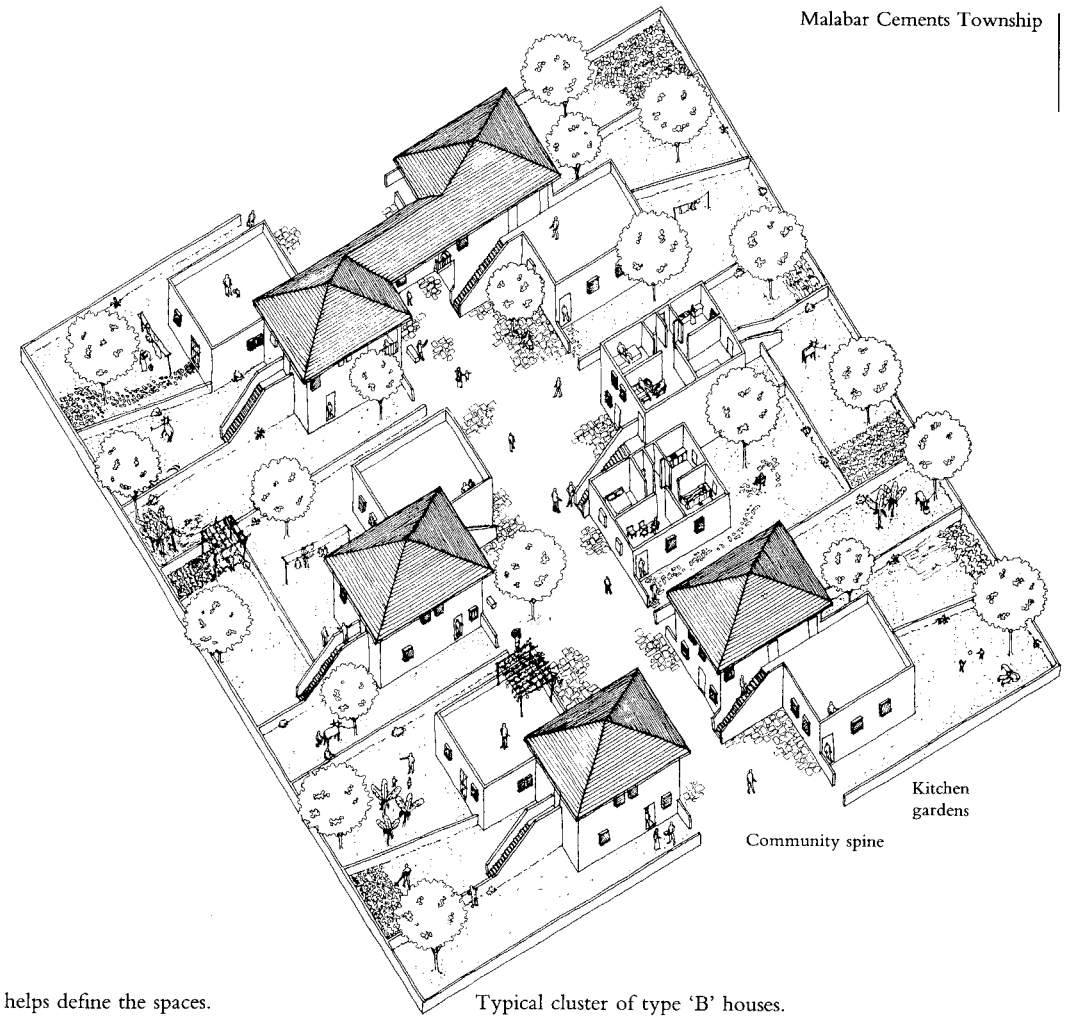
Site plan.



Plan, type 'A' houses.



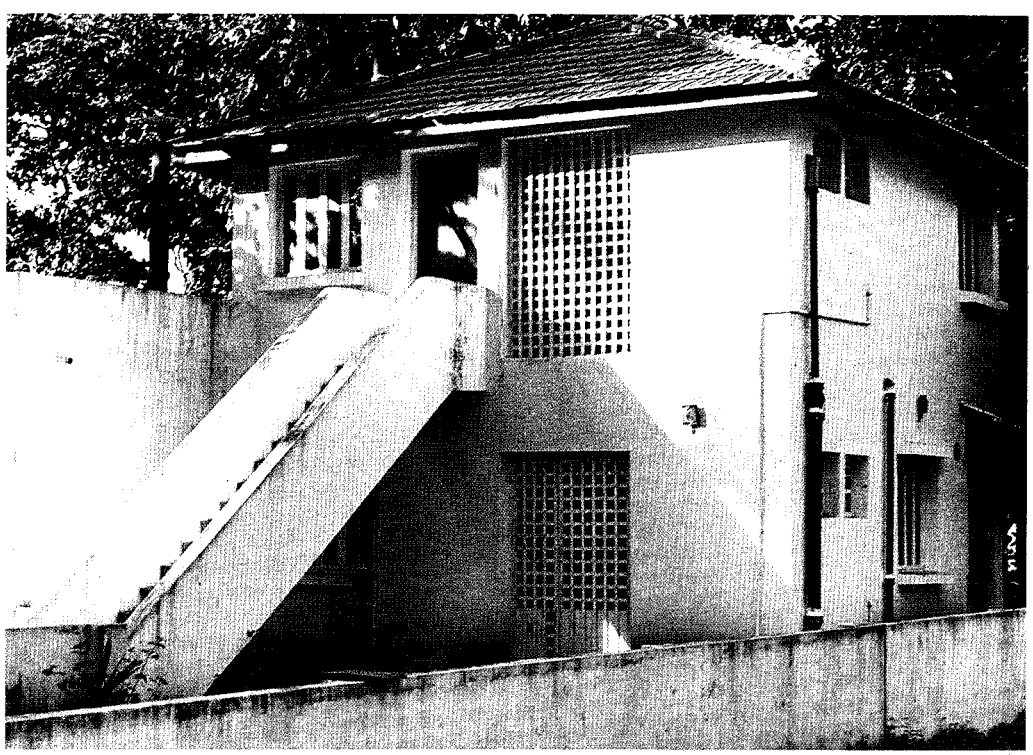
Plan of the Workers Village.



Left: Pedestrian spine with an overhead bridging unit which helps define the spaces.

Typical cluster of type 'B' houses.

Entrance to an upper storey unit.



Rear staircase from an upper storey unit to a kitchen garden.

Belapur Housing

Belapur, New Bombay
1983–86

Belapur is a new node in Nerul some two kilometres from the centre of New Bombay. This area of 5.4 hectares has been developed to house 500 people (100 households) per hectare — a total of some 550 families. The work commissioned by CIDCO in 1983 took three years to complete and the first occupants began to move in by mid-1986.

The project uses one overriding principle: each unit is on its own individual site to allow for expansion. The scheme caters for a wide range of income groups, from the lowest (with budgets of Rs. 20,000 i.e. $1,700 per unit) to middle income groups (unit costs Rs. 30-50,000) up to upper income levels (with unit costs of Rs. 180,000 i.e. $ 15,000). Although the range of income groups is large — a ratio of 1:5 — the variation of plot size is much smaller, from 45 square metres to 75 square metres — a ratio of less than 1:2. (Originally the architect wanted one standard plot size of 50 square metres but this was amended due to affordability and the rules and procedures of the lending agencies.)

As each unit has its own plot and does not share any common walls with its neighbour, it also has its own open-to-sky space which augments the built-up area. This independence, well recognised as desirable in contemporary planning, allows each house owner to extend or change his dwelling in whatever way the family sees fit and at a pace in keeping with family economic well-being.

This low-rise high-density scheme utilises a cluster arrangement around small community spaces. At the smaller scale, seven units are grouped around an intimate courtyard of about 8 × 8 metres. Three of the clusters combine to form a larger module of 21 houses surrounding an open space of 12 × 12 metres. Three such modules interlock to define the next scale of community space — approximately 20 × 20 metres. The spatial hierarchy continues until the neighbourhood spaces are formed where schools and other public-use facilities are located.

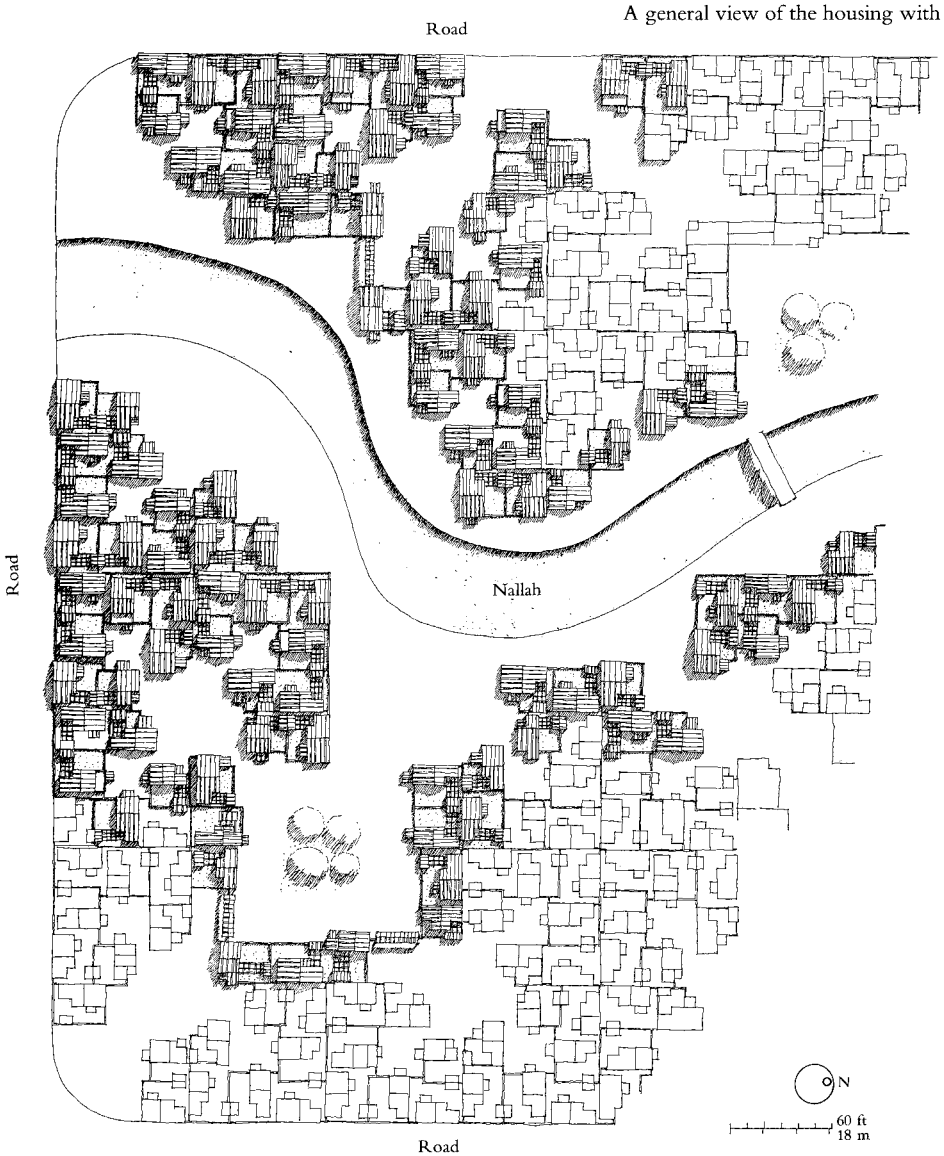
The whole is arranged so that the neighbourhood spaces open to a small stream which runs through the centre of the site (which drains the surface water during the monsoon rains) and overlook the hills behind. Along a diagonal running through the site is the proposed bazaar.

The houses themselves are planned with toilets located in pairs, to save on plumbing and sanitation costs. For each plot the main structure of the house can abut the boundary on two clearly specified edges in a pattern that ensures that it will be free-standing in respect to its neighbours. No windows are allowed on these walls in order to protect the privacy of all concerned. The houses are structurally simple and can be built and altered by local masons and *mistries* with the participation of the inhabitants themselves.

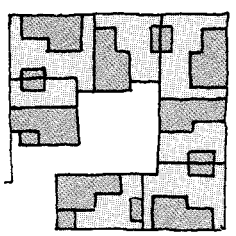
Belapur makes a statement which combines those principles Correa believes to be most important in housing, namely: Equity, Incrementality, Pluralism, having Open-to-Sky spaces and Disaggregation of spaces to allow for participation in forming one's own environment, and to facilitate income generating activities. As such it is a robust architecturally-designed solution for lower and middle income housing. What will be interesting will be the changes made by the inhabitants themselves which, hopefully, will add to the scheme's vigour.

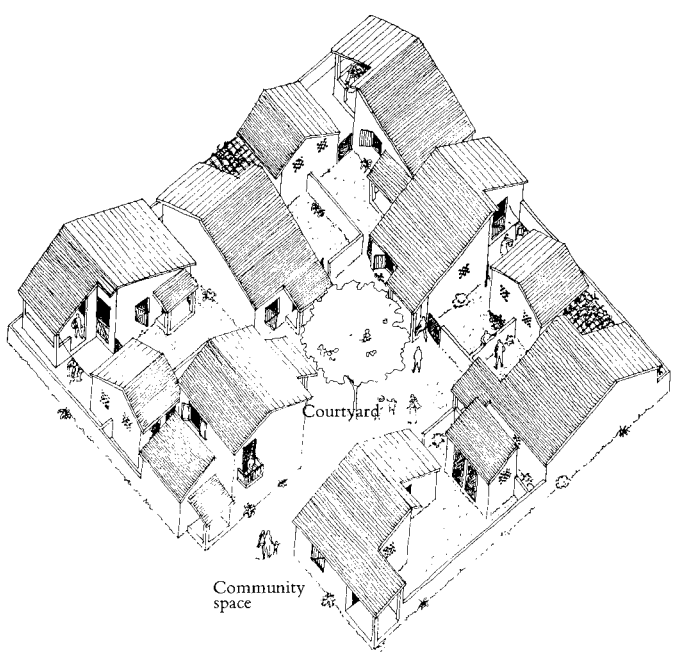
A cluster, showing the individual houses although sanitary facilibut along enclosure walls.

A general view of the housing with the low-lying hills in the background.



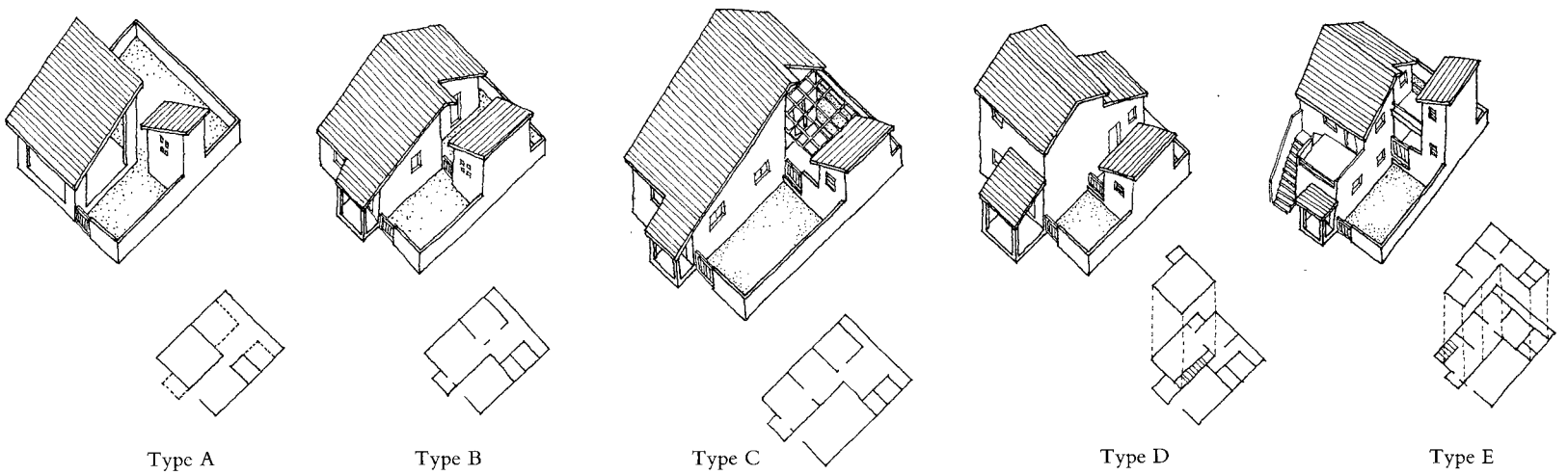
Phase I site plan.





Type A units.

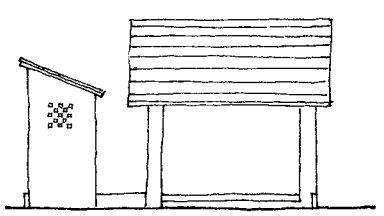
Phase I Housing.



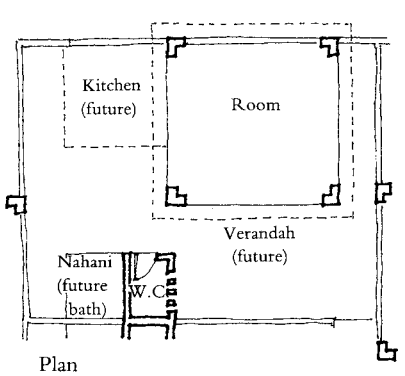
Type A Type B Type C Type D Type E

Plans and axonometric drawings of the five house types proposed to the residents of the first phase.

Type A
Plan and elevation of the simplest unit.

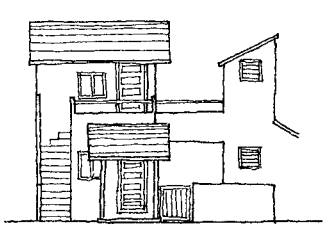


Side elevation

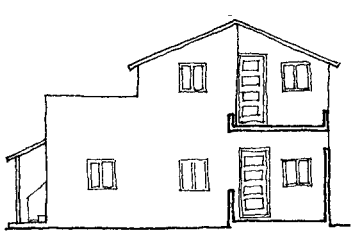


Plan

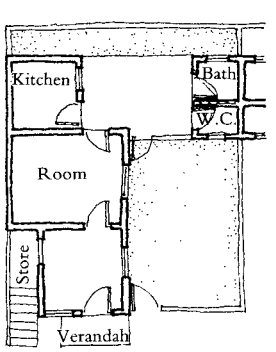
Type E
Plans and elevations. This larger unit's built-up area is approximately 75 square metres on a plot of 66 square metres.



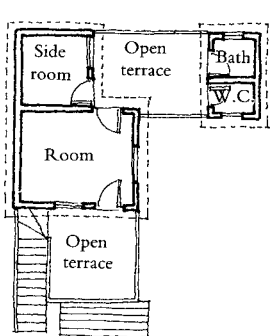
Side elevation



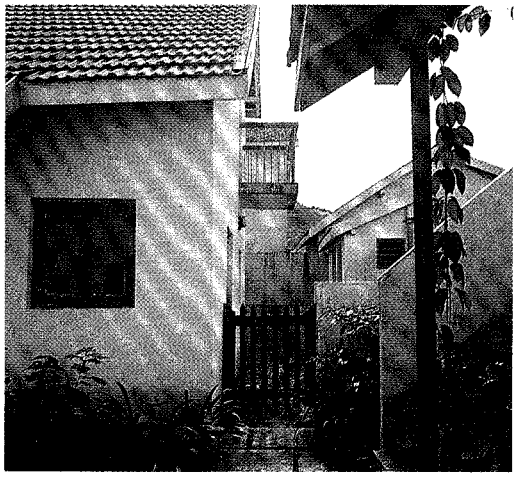
Elevation

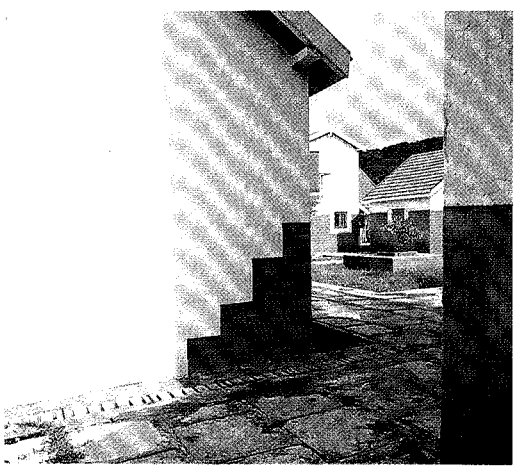


Ground floor plan

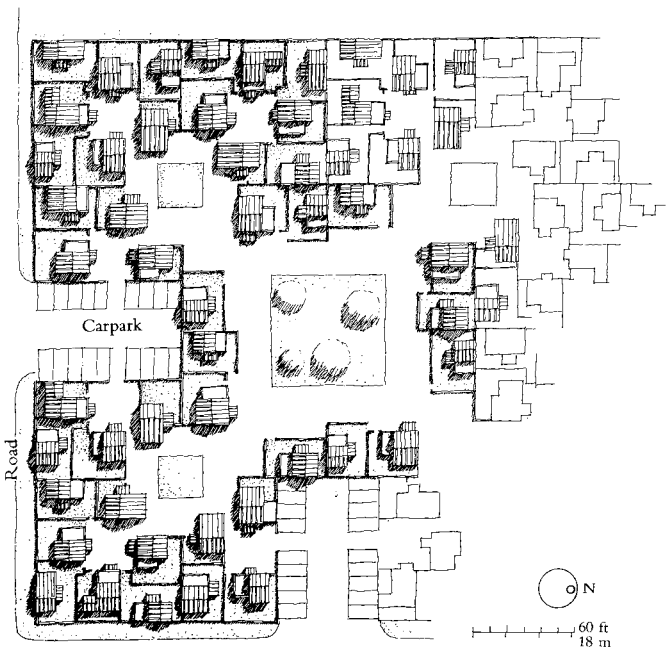


First floor plan





Views of one and two-storey house-types with adjacent "open-to-sky" space for incremental extensions.



Phase II Site plan.

The human scale allows for community interaction.
Right: Typical unit.

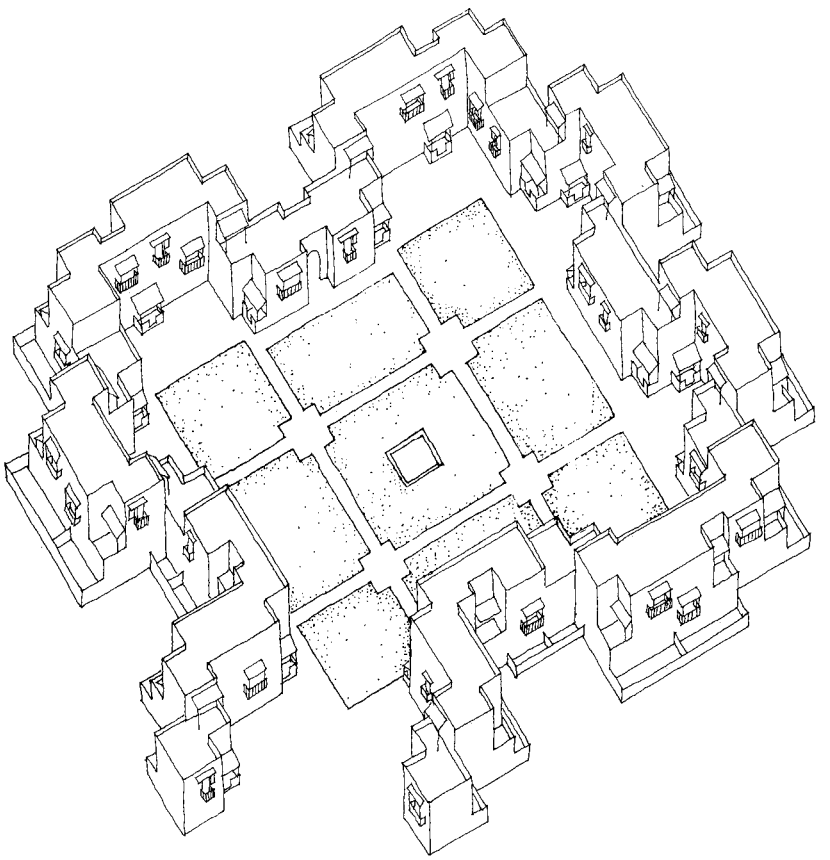
ACC Township

Wadi, Andhra Pradesh
1984

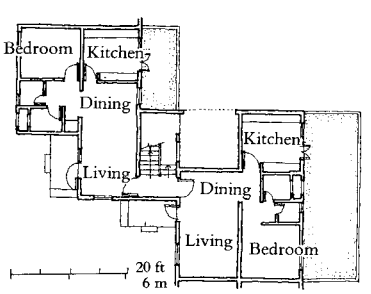
In 1984 the Associated Cement Company (ACC) of India commissioned two types of housing to be incorporated into an existing company township. The units designed are strung along the periphery of the sites, rather like a necklace. In both instances there is a progression from the exterior to the interior of the site; from the public and vehicular access domain, to the private internal space of the house itself, to a semi-private patio or court, to the large central communal space.

The first type of units — Type B — consist of 368 flats, each with an area of 48 square metres. These three structures are arranged in a highly formal manner to form a series of interconnected units, courtyards and gardens. The units decrease on the upper levels to form terraces overlooking the central space.

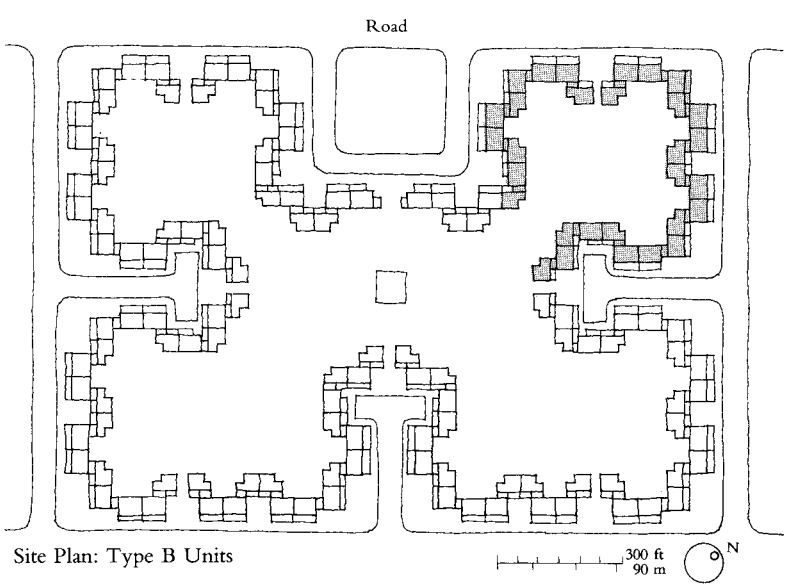
The second type — the larger Type J units — are approximately 65 square metres each. These consist of 45 courtyard houses, ventilated by internal patios, arranged in tightly-knit clusters. Each two-storey unit has a *barsati* (literally; rainy season) room on the upper terrace level.



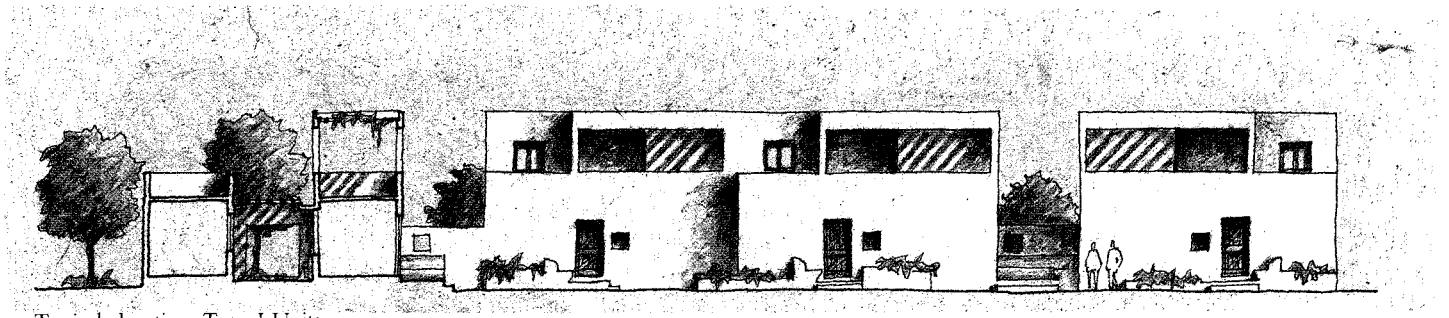
A necklace cluster of Type B Units.



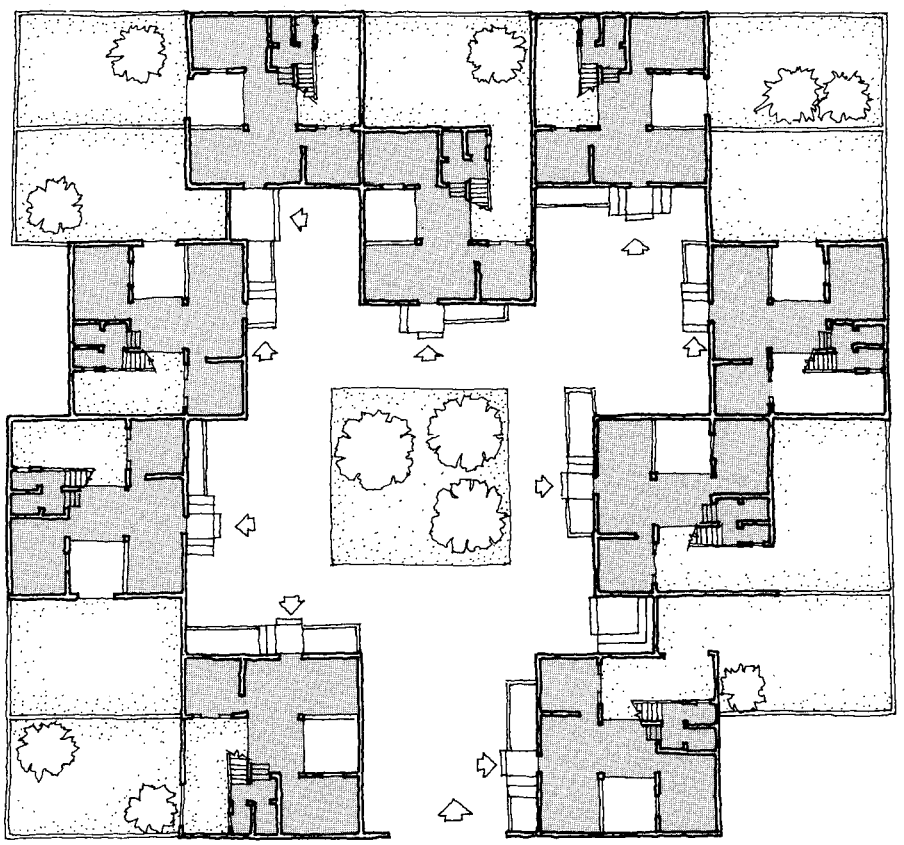
Ground floor plan: Type B Unit.



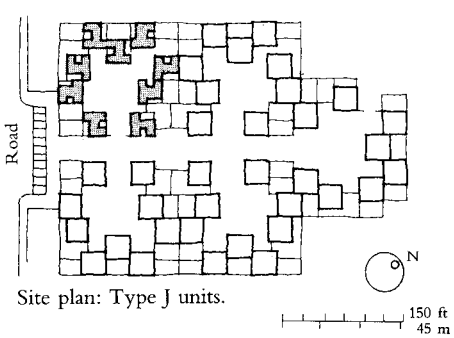
Site Plan: Type B Units



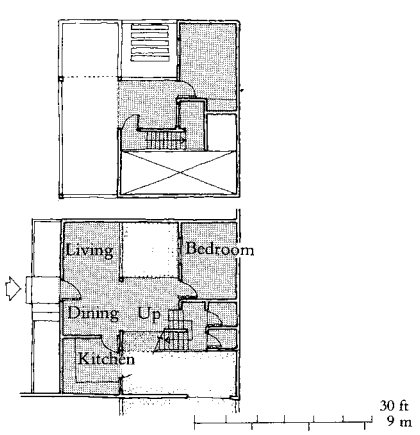
Typical elevation: Type J Units.



Cluster plan: Type J Units.



Site plan: Type J units.



Ground and first floor plans: Type J unit.

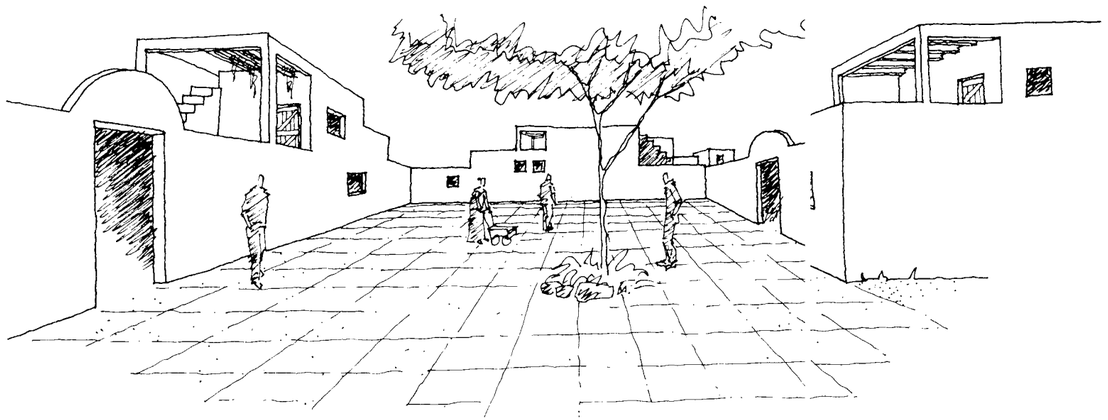
HUDCO Housing
Jodhpur
1986–

HUDCO (Housing & Development Corporation), the central housing agency of the Government of India, commissioned Correa to add 176 houses to an existing development.

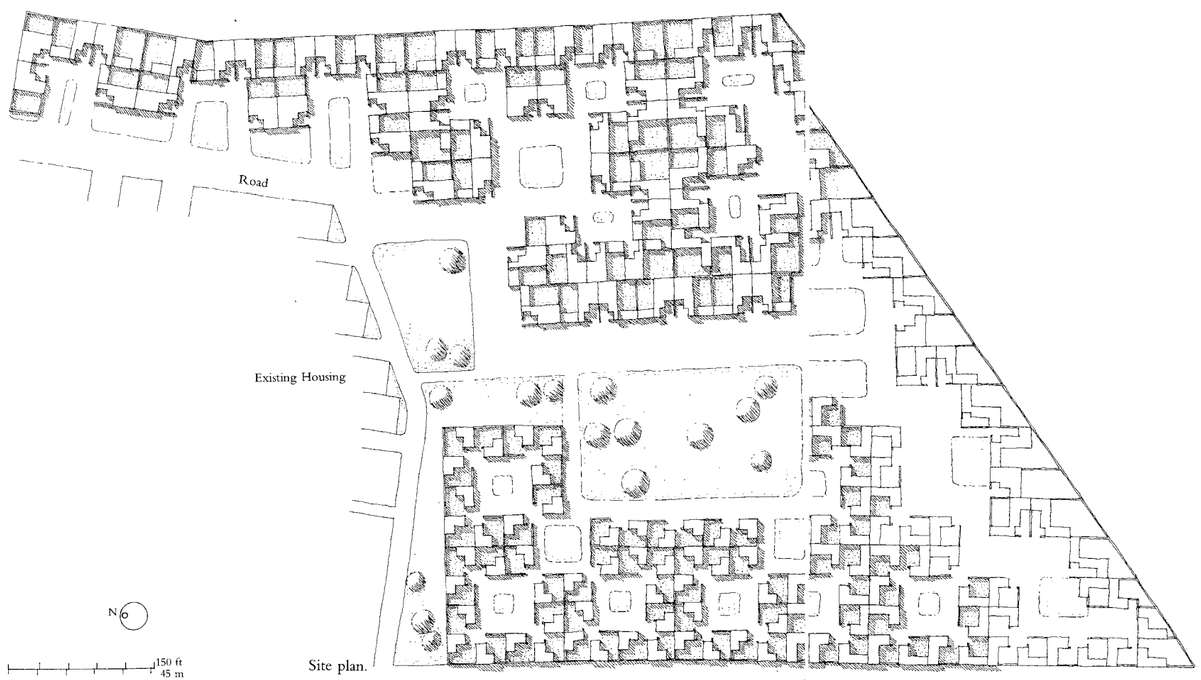
Using the basic design principles for the units at Belapur, the architect grouped the units around a hierarchy of open spaces. The houses are to cater to four income categories, from lower to mid-level income families. There are, however, only two basic plot sizes. Each unit is independent from its neighbour which allows for incrementality and upgrading as families become upwardly mobile.

The construction materials are those that are readily available. Local stone is used in a centuries-old traditional manner, for both the load-bearing walls and the roof slabs, similar to the Cablenagar Township at Kota.

The units themselves are massed in single and double storey blocks. The house designs of the two to four room (excluding service spaces) units remain simple and are influenced by their Rajasthani context in terms of arrangement and construction materials. Because of the hot dry climate, each unit is built around an enclosed courtyard — different from Belapur where the units allowed for through-ventilation needed in the hot wet climate of Bombay.



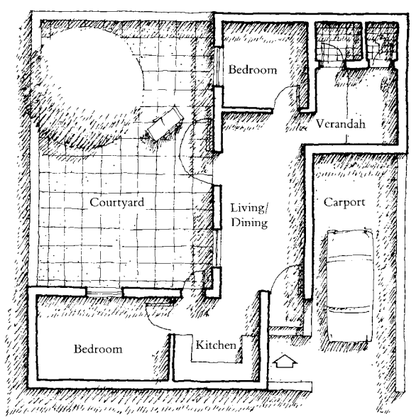
Architect's sketch of a communal open space surrounded by houses.



Site plan.

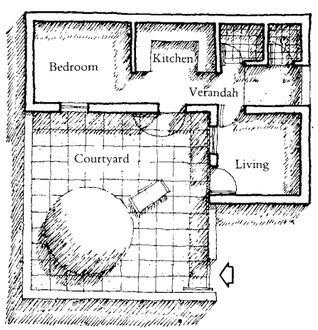
Section.

Type 'MIG II' unit

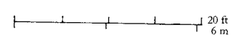


Typical plan.

Type 'MIG I' unit

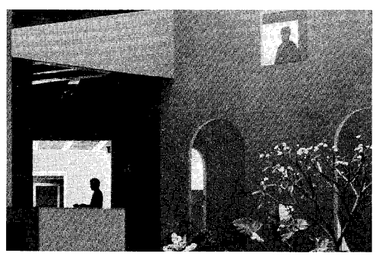


Typical plan.

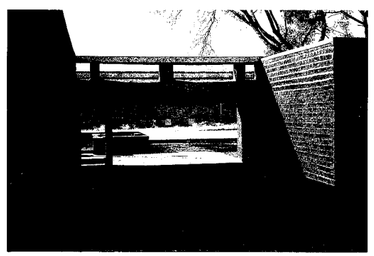


Concern for architecture with a capital "A" — good design which adds to the joy of living — is embedded in Correa's being. His eye for beauty in form and content characterises many of his works: most notably private houses and hotels.

His holiday Resort Hotels perhaps best illustrate his experiments with ideas related to the visual aspects of architecture. (Correa has so far not tackled the Businessmen's or Central City Hotel types, but concentrates on buildings for recreation.) He sees no contradiction between serving the rich and the poor and, within the Indian context, sees them as two ends of a spectrum that both complement and contradict each other. He borrows aspects of design normally associated with the rich and includes them in buildings for the poor, such as the provision of individual house plots, a concern for exterior spaces, the tiled roof dwelling, climatically responsive buildings, and so on. And conversely borrows ideas from the poor and more traditional people to use in dwellings for the rich, such as his use of decoration/painting of buildings, forms, materials, etc. This goes beyond mere image-making: it is the transfer and transformation of ideas from one context to another.



Cidade de Goa, reality and illusion through painting and colour.

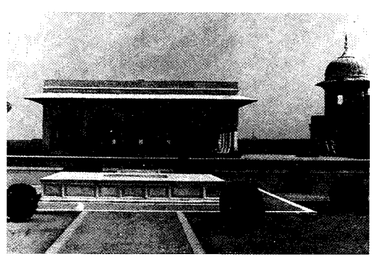


Kasturba Samadhi, platforms and views creating "non-spaces".

The hotels with which Correa's office has been involved have been small to mid-sized structures situated in locations that call for a definite attitude to view, atmosphere and climate. The sizes and sitings were significant as they gave the architect a greater freedom in which to realise his ideas. Additionally, he was dealing with the upper economic brackets and could cater to more refined tastes and indulge himself in some playfulness.

In Correa's Early Works his dedication to expressing form, materials, climate and one major concept per building in general led him to use concrete, brick, and other materials in their unadorned state. As time went on, he began to work with colour and texture; and in this he was significantly influenced by his wife Monika, an artist in her own right, who is a textile designer and weaver. As Correa remembers: She helped with the interiors of some of the work, in particular the *Kudils* at the Kovalam Beach development. And also of course Cidade de Goa and Bay Island Hotel. She also helped me in the use of colour. I had always felt Le Corbusier's primary palette (red, blue, green, yellow, etc.) a bit too simplistic and crude — especially in contrast to what I could see all around me in India — but I didn't know how to bring these other values into architecture. Understanding Monika's interest in textiles and weaving helped a great deal in making a breakthrough".[1] And it was indeed a breakthrough: Correa's use of colour became important and changed the outlook of his work — he has never looked back and uses colour boldly in his later works.

Geoffrey Bawa, University in Sri Lanka, presenting sequences of events along a path.



Correa's use of the pavilion is reminiscent of the Mughal pavilions.

The use of colour and pictorial representation has led him to further into the world of illusion — illusion which is so well suited to holiday resorts (actually being somewhere else) as well as to his museums (recreating events) and art centres (creating new illusions). Here he is essentially dealing with "stage sets". In the Cidade de Goa Correa pays homage to surrealist artist De Chirico as a painted figure at a window. In his approach Correa reflects strongly what the Turkish architect Sedad Eldem said: "When I first discovered De Chirico I realised that it was not architecture I was dealing with but a stage set. So I experimented with it, maintaining what was necessary to turn the stage into architecture".[2]

The use of the stage or "platform" on which events take place is another early manifestation of this. The action on several levels is an extension of his concern with the "platform" and "maze". These, tied to "site" and "view" give rise in two of his hotels illustrated in this section — at Kovalam and Bay Island — a series of spaces from which particular views are framed and a sequence of events is presented. In this unfolding of vistas and creating *promenade architecturale* Correa has something in common with the fine Sri Lankan architect, Geoffrey Bawa.

The casual relationship of the inside to the outside, i.e. the open-to-sky component, is evident in all the hotels. The use of this important relationship varies greatly within the hotels themselves (from the more introverted Cidade de Goa to the extroverted Bay Island) as well as in other works such as the Kasturba Samadhi and the Kanchanjunga Apartments. His hotels may be regarded as a series of pavilions — some enclosed, some semi-open — arranged to take advantage of the view yet provide shade as *chatris*. This use of pavilions is reminiscent of those at the Mughal Divan-e-Aam in Lahore or Delhi Forts and the Sarkhej Palace.

By combining these elements what he has often called his "kit of parts", he begins to manifest cultural and regional differences in his work. For example in his Cidade de Goa there is a reference to the immediate Goan building context.

[1] C.M. Correa in a letter to the author dated 6 March 1985.
[2] S. Eldem in an interview with architectural historian Sibel Bozdogan, Istanbul, 28 February 1986.

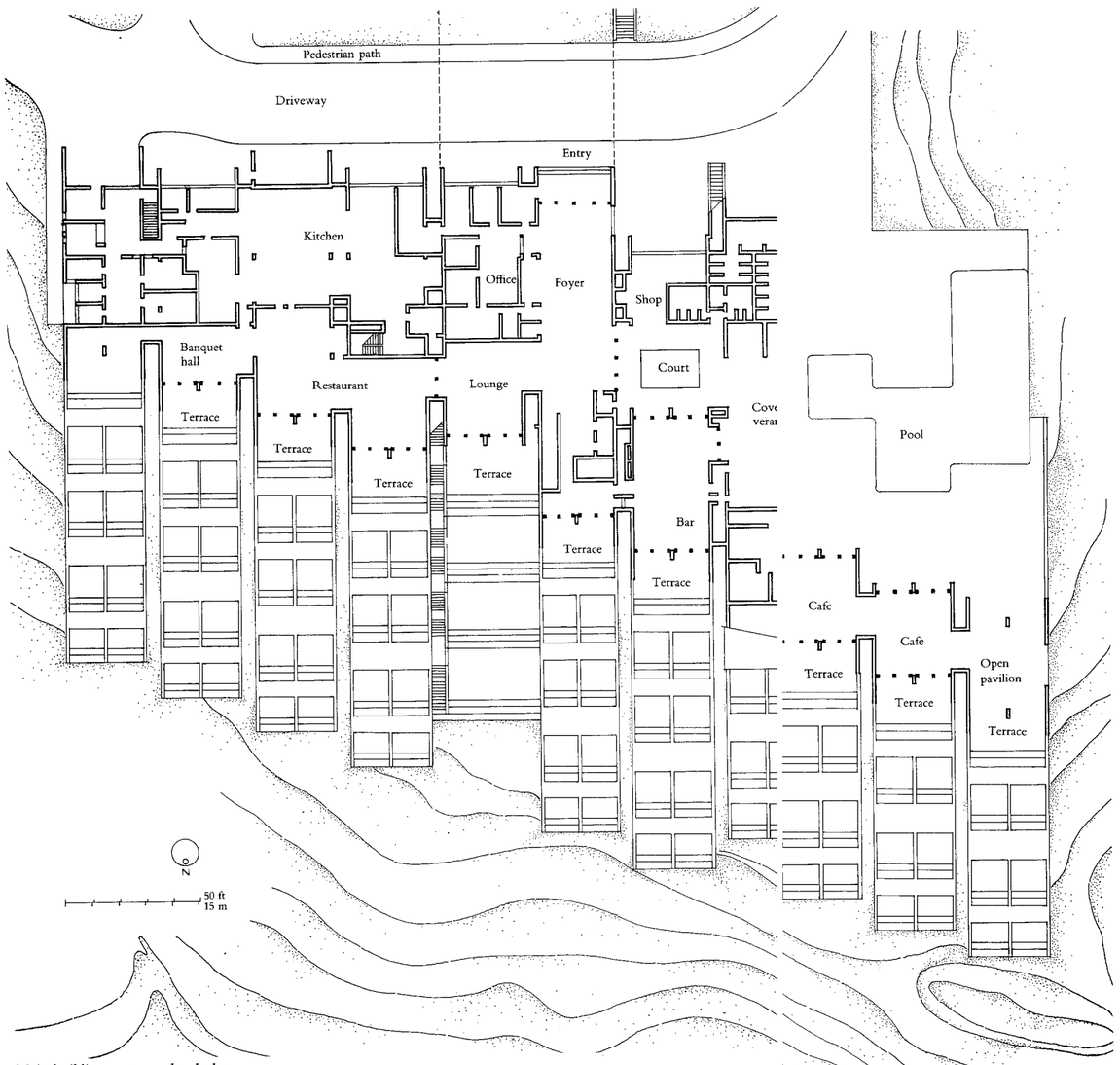
Kovalam Beach Resort

Kerala
1969–74

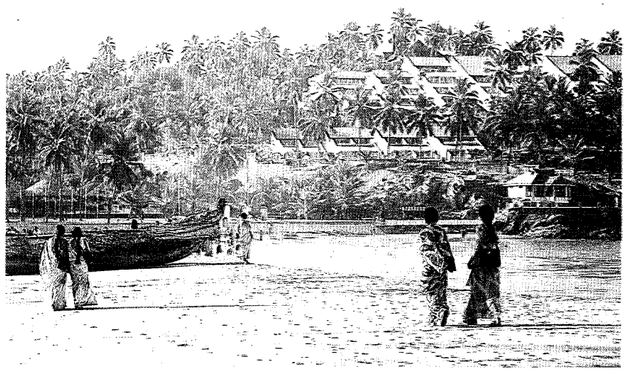
Kovalam, one of India's most spectacular beaches, is just north of Kanyakumari along the Arabian Sea. With this project the client intended to initiate Kovalam's development as a major resort without disturbing the beauty of the surroundings. The site is adjacent to the old Kovalam Palace. The project design commenced in 1969 and the first phase of construction completed in 1974. This phase involved establishing a number of facilities acting as a catalyst for future growth.

The current resort provides 300 beds as well as specialised facilities such as centres for yoga and ayurvedic massage, and water sports. The master plan scatters the facilities over the site, rather than concentrating them in one area, thus creating a number of potential growth points and allowing for a flexible response to future demands. In order to preserve the site's natural beauty the buildings follow the hill slope: this also means that each room gets its own private terrace for sunbathing and relaxing. There are also a number of detached units and independent units or *kudils*.

Although the design is contemporary and is not directly derived from local forms, except for the Beach Centre pavilions which are lightweight bamboo *chatris*, the buildings refer to the vernacular with the plastered white walls, red tiled roofs and sundecks. The interiors utilise light furnishings, matting on the floors and simple Indian crafted finishes.



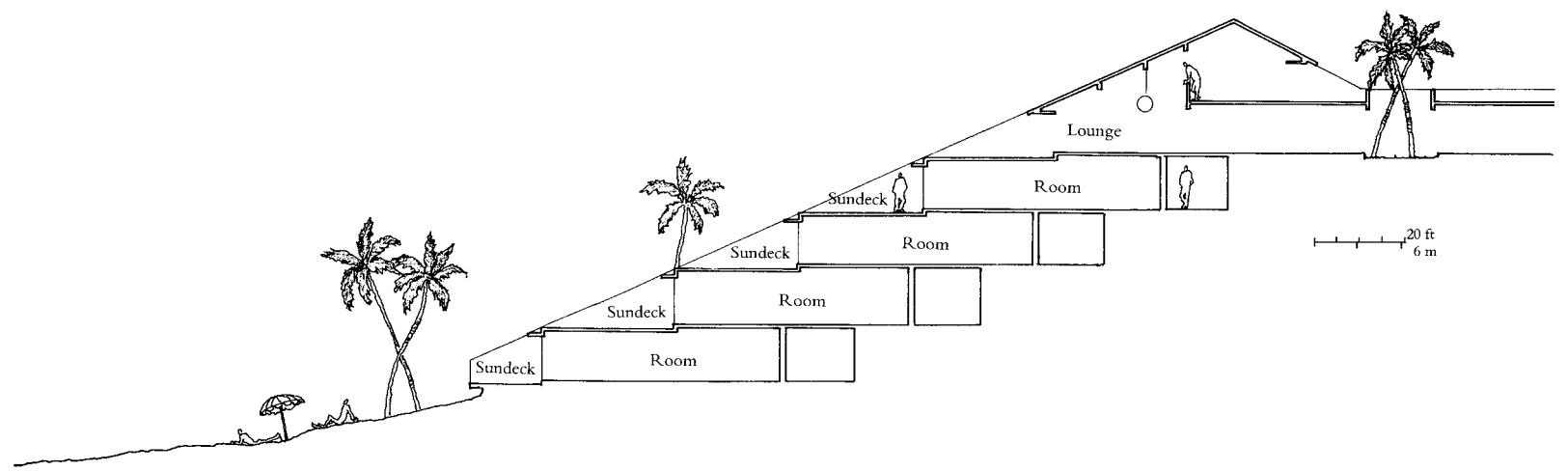
Main building; entrance level plan.



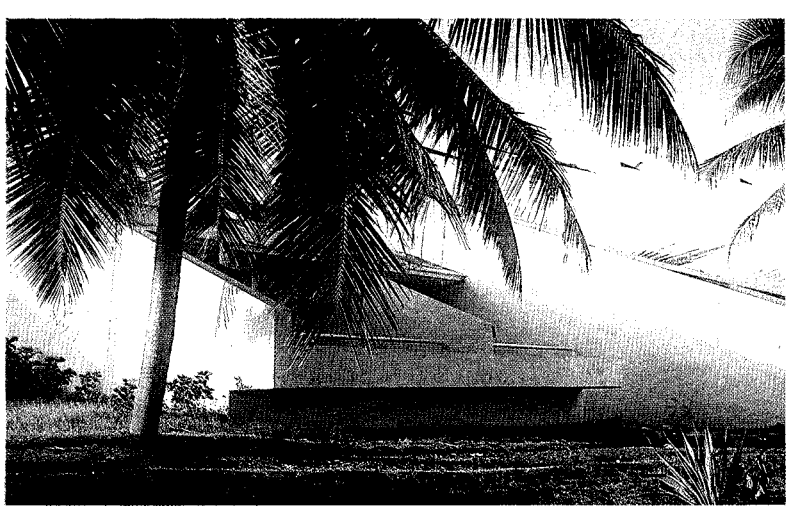
General view.

View from a sundeck.

Right: View from the beach.

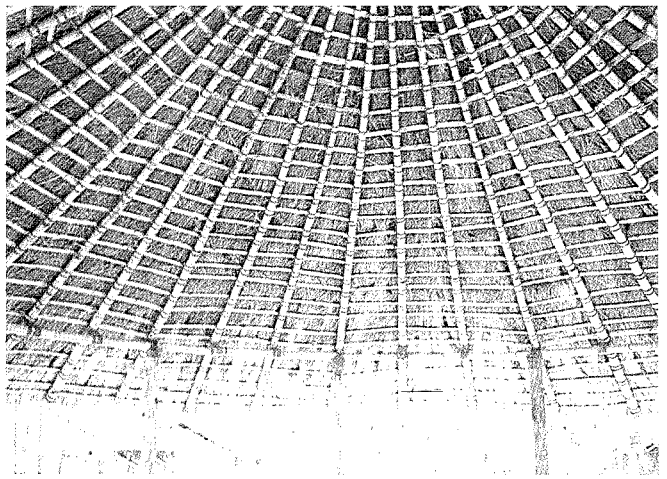


Section: Main building.

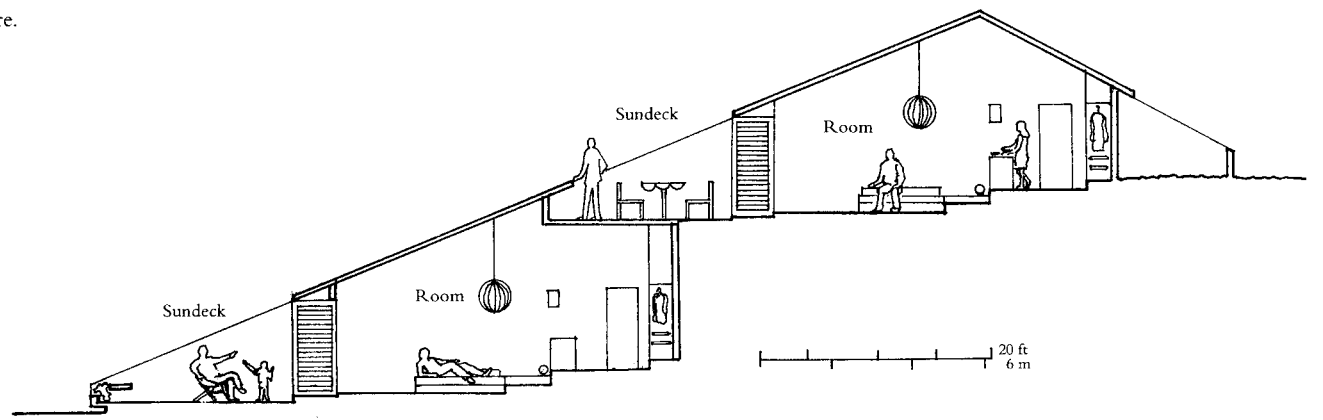


Main building.

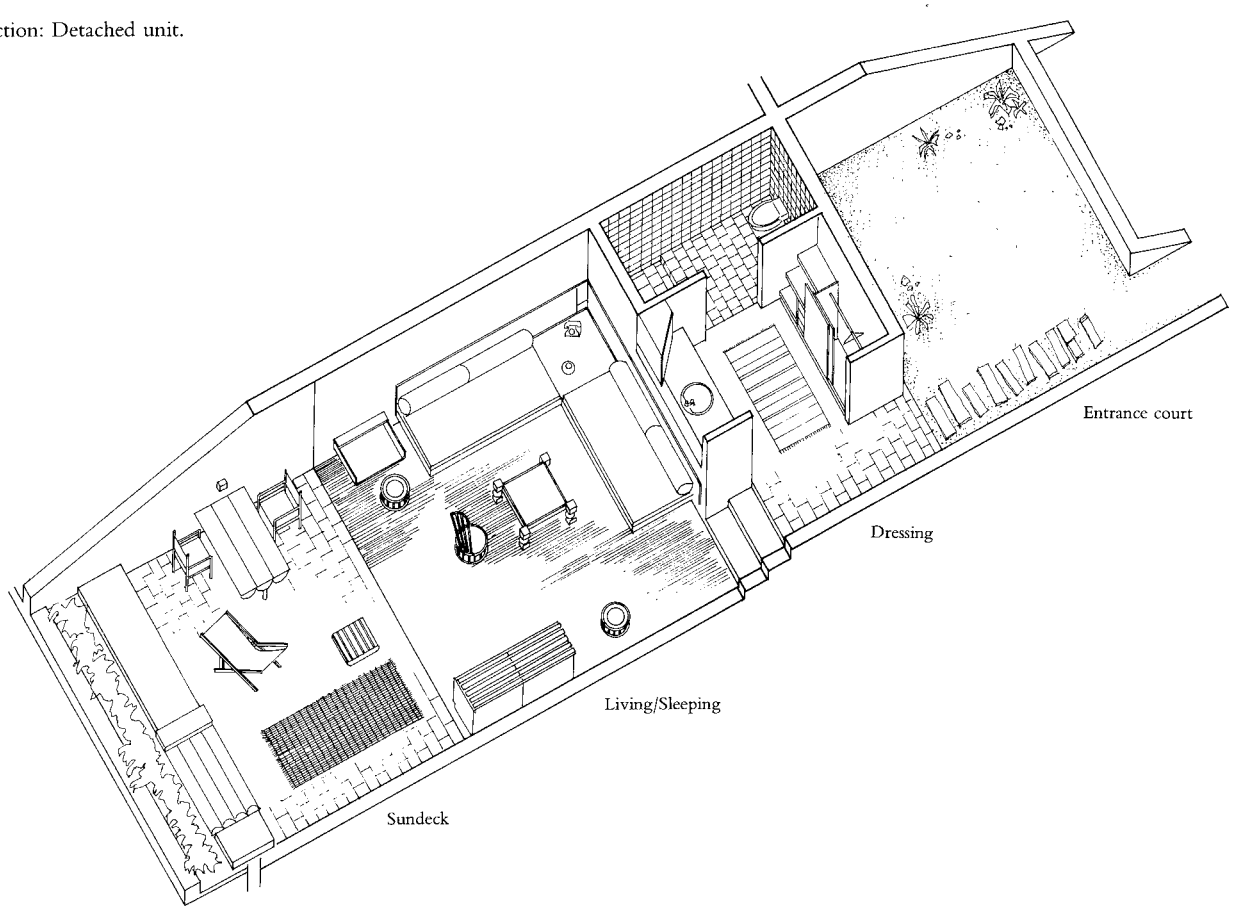
Sundecks in the main building.



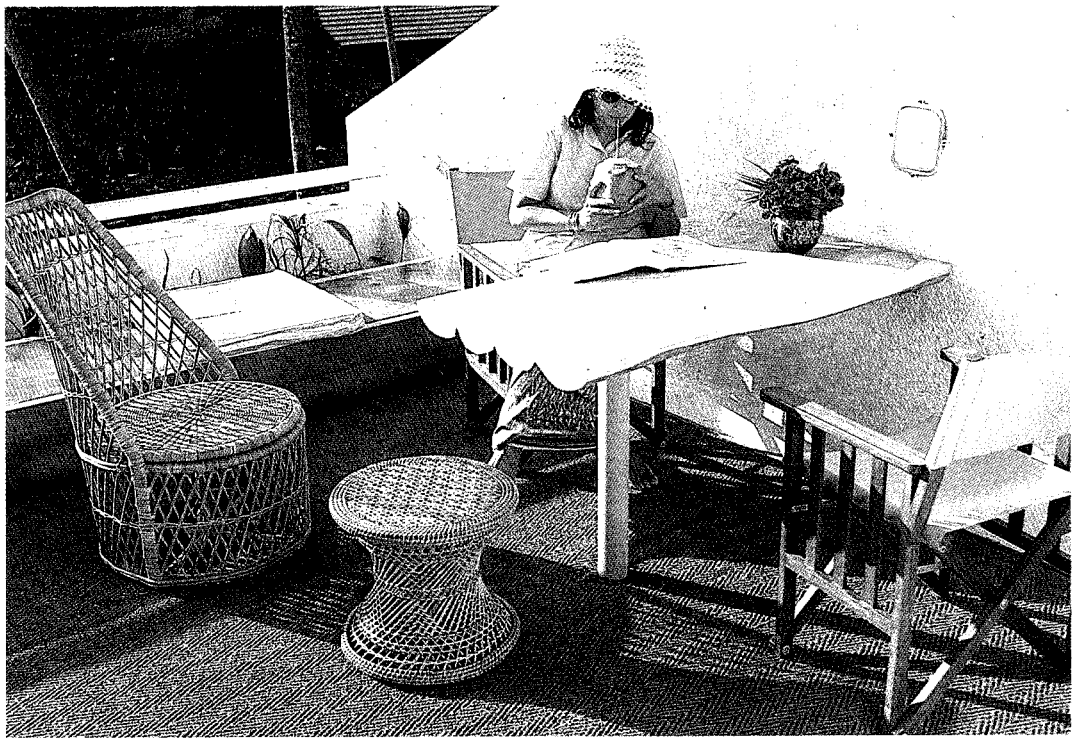
Bamboo *chatri* in the Beach Centre.



Section: Detached unit.



A typical *kudil*.



Sundeck in a *kudil*.

Interior of a typical living-cum-bedroom in a *kudil*.

Bay Island Hotel

Port Blair, Andaman Islands
1979–82

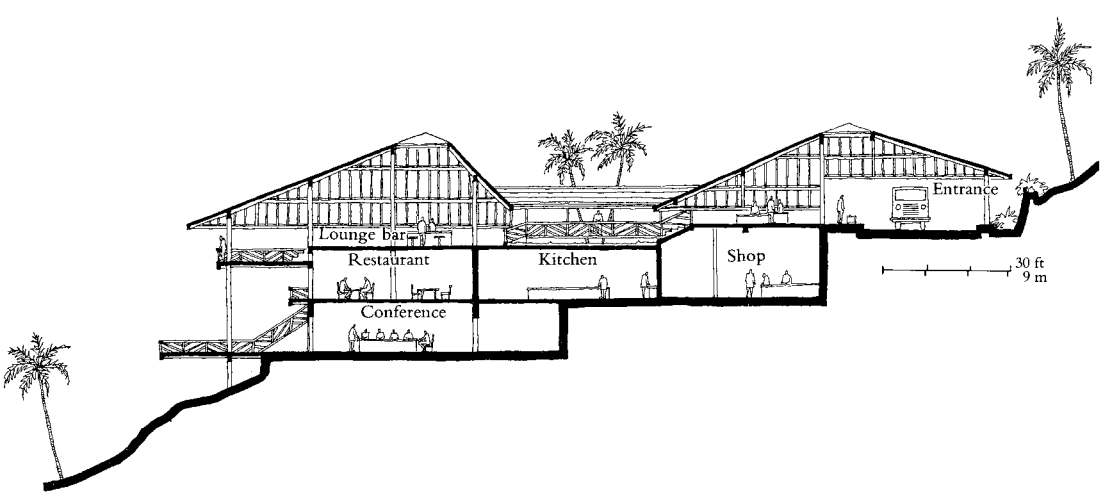
Port Blair, with its deep-blue water harbour is the main town of the Andaman Islands which lie to the south-west of Rangoon in the Bay of Bengal. The islands are inhabited by a number of different tribes, many of whom have had little contact with the outside world. The Andamans are a world of primordial beauty, of whales and robber crabs; a throwback to the time and voyages of Charles Darwin.

The site for the hotel slopes down to the sea from which there is a prevailing breeze. In many parts of India one finds structures which are extraordinarily inventive in their response to prevailing breezes and light. For instance, in the one-thousand year old Padmanabhapuram Palace, built in the hot humid climate of Southern India, the royal pavilion floor is built as a stepped pyramid covered by a tiled pitched roof. This configuration has two advantages; it does not need any enclosing walls to keep out the sun and rain, and from within the pavilion the line of vision is both unobstructed and deflected downwards to the cool grass around the building.

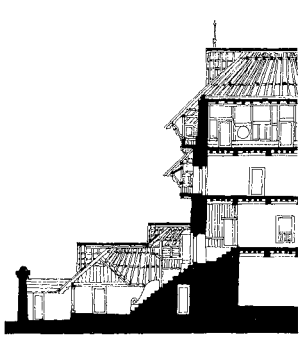
This principle helped generate the design of the Bay Island Hotel. Built up of a series of spaces which overlook grassy land and the sea, the buildings are arranged around courtyards connected by covered corridors. The public areas form a series of decks, cascading down the hill, protected from sun and rain by the large overhanging roofs — a major feature of the scheme. The roofs are constructed of a local redwood known as *padauk*. The guest rooms are in clusters of twelve arranged in an L-shape on two levels, giving each room a view of the waters.

The lightweight furnishings with their playful imagery were designed by the architects. The murals were executed by Bhiwandkar, the film-poster painter who was also responsible for the paintings in the Cidade de Goa project.

The hotel can accommodate a total of 100 guests in 50 rooms with space for expansion. The project was commissioned by Mr. Caseem Jadwet and the Indian Tourism Corporation (ITC) in 1979 and construction completed in 1982.



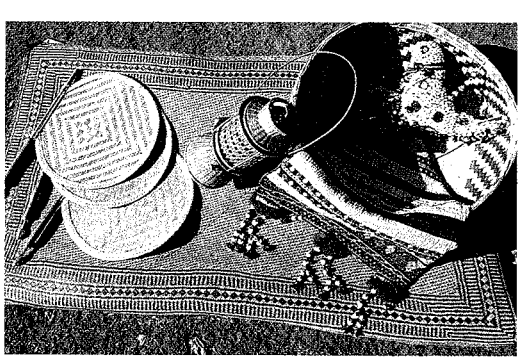
Section through the main building.



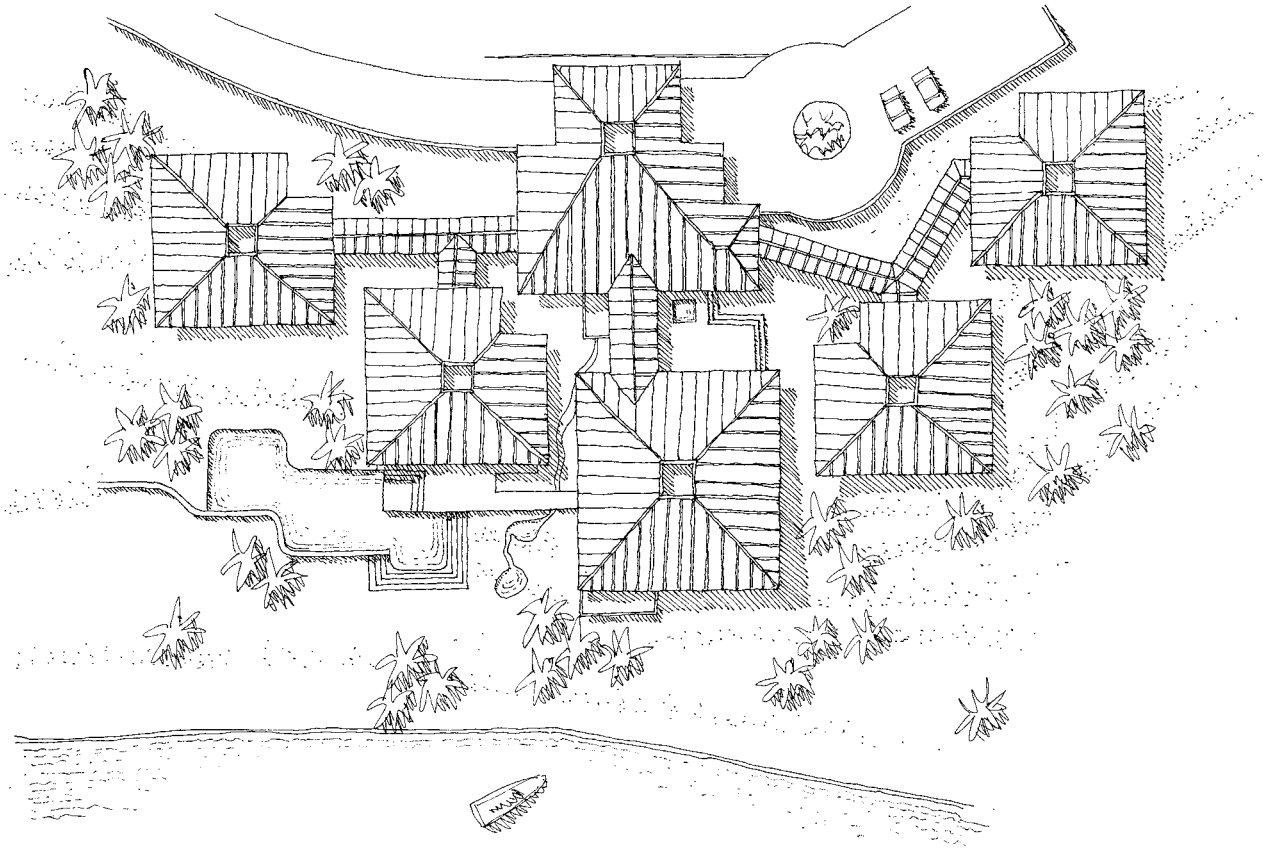
Section of Padmanabhapuram Palace.

Onge tribal.

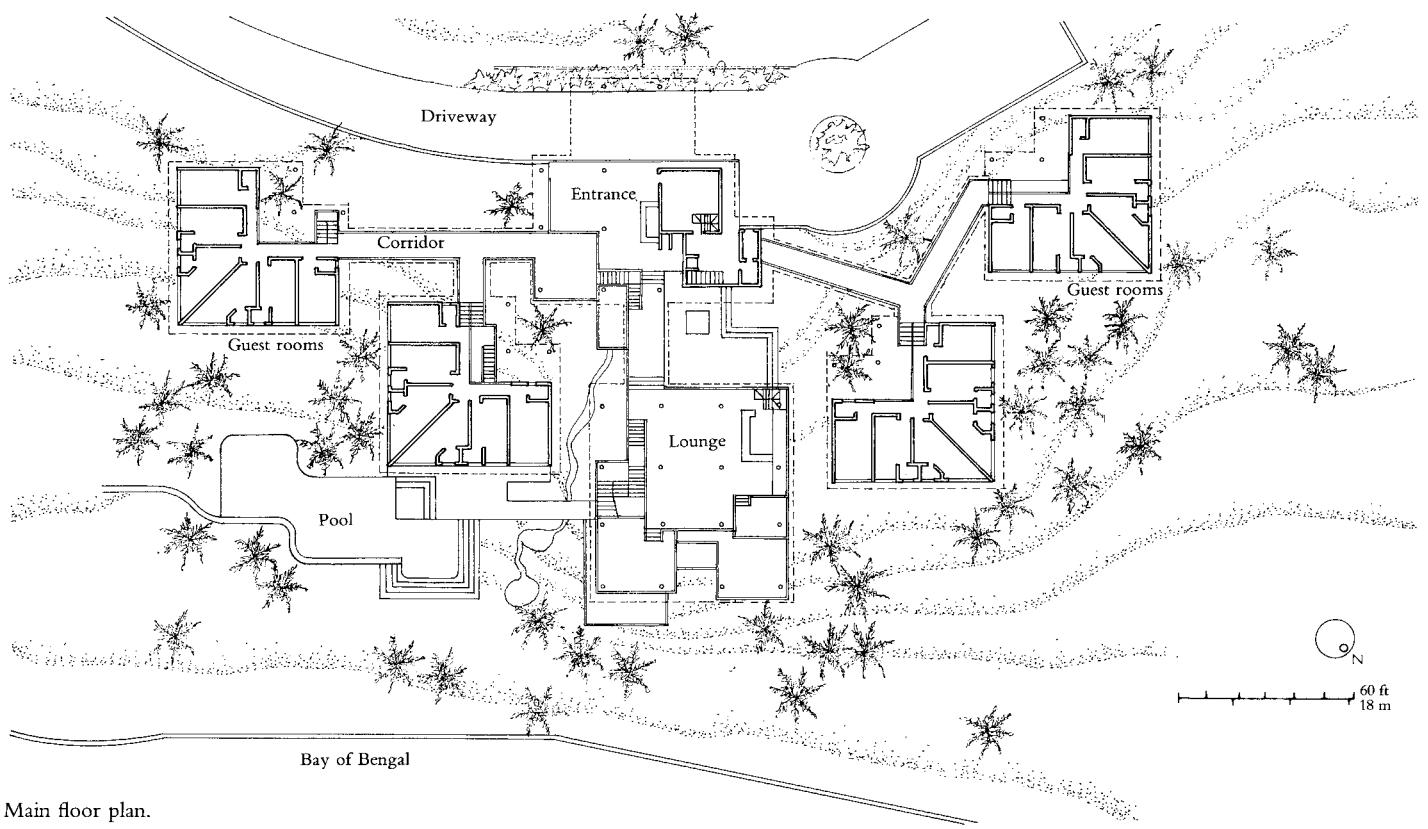
Typical Nicobari village.



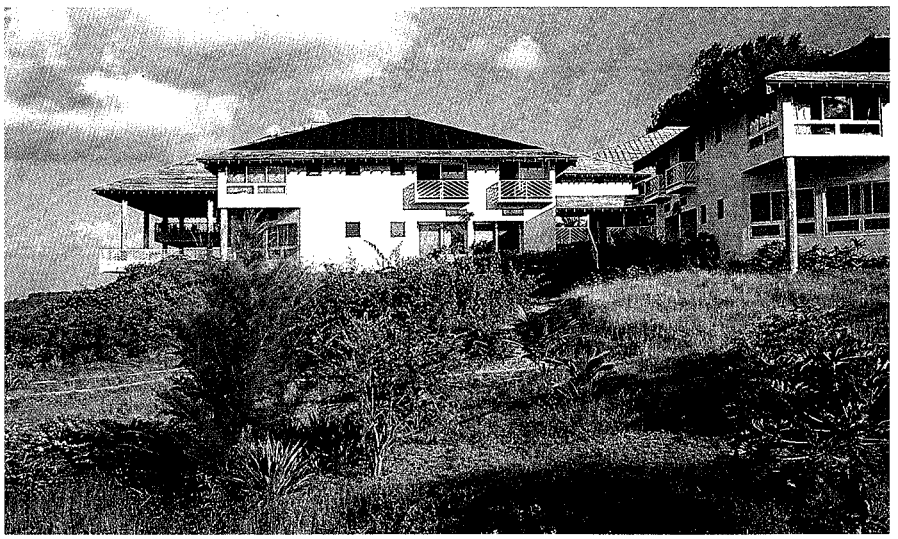
Commonly used tribal artifacts.



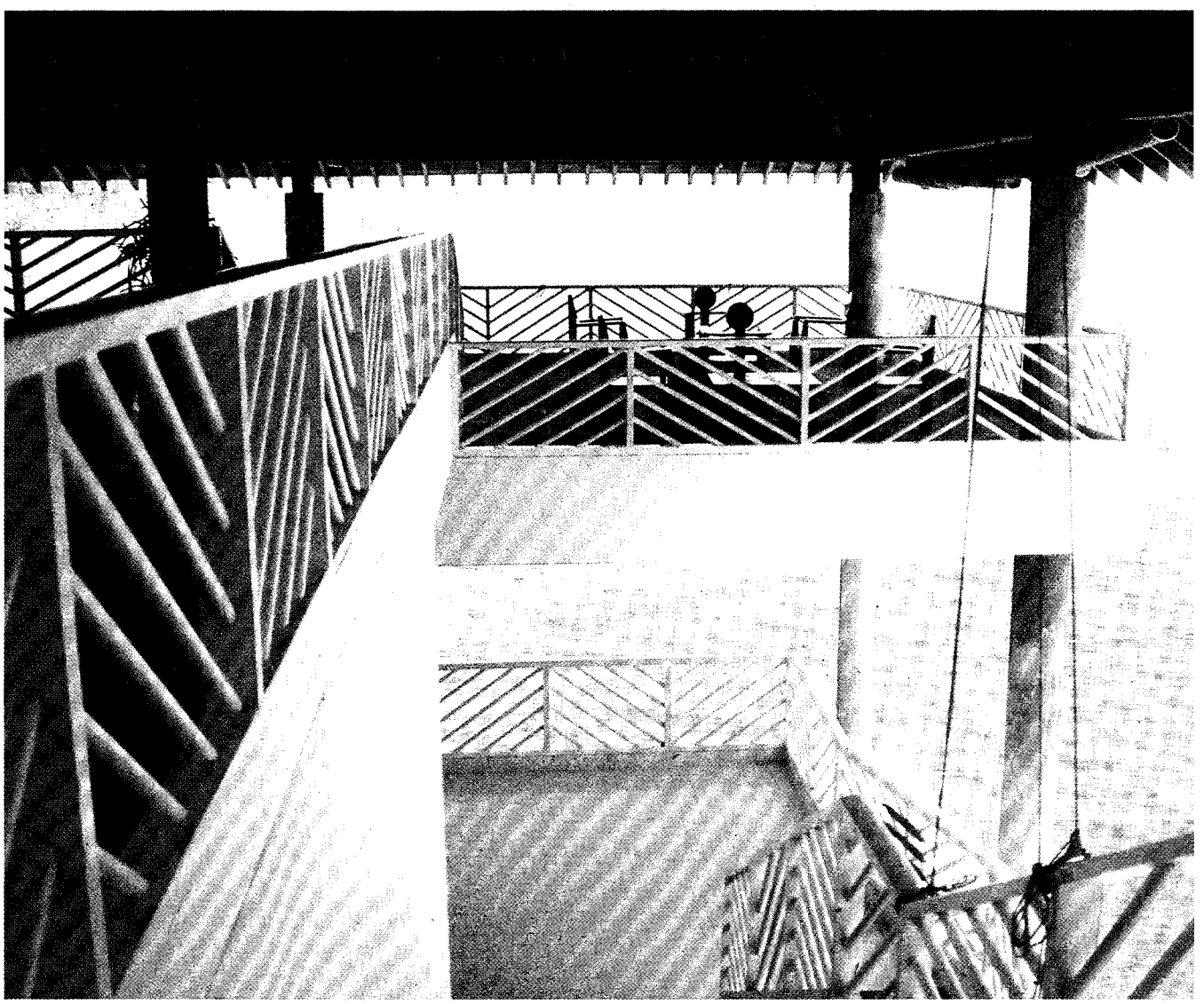
Roof plan.



Main floor plan.



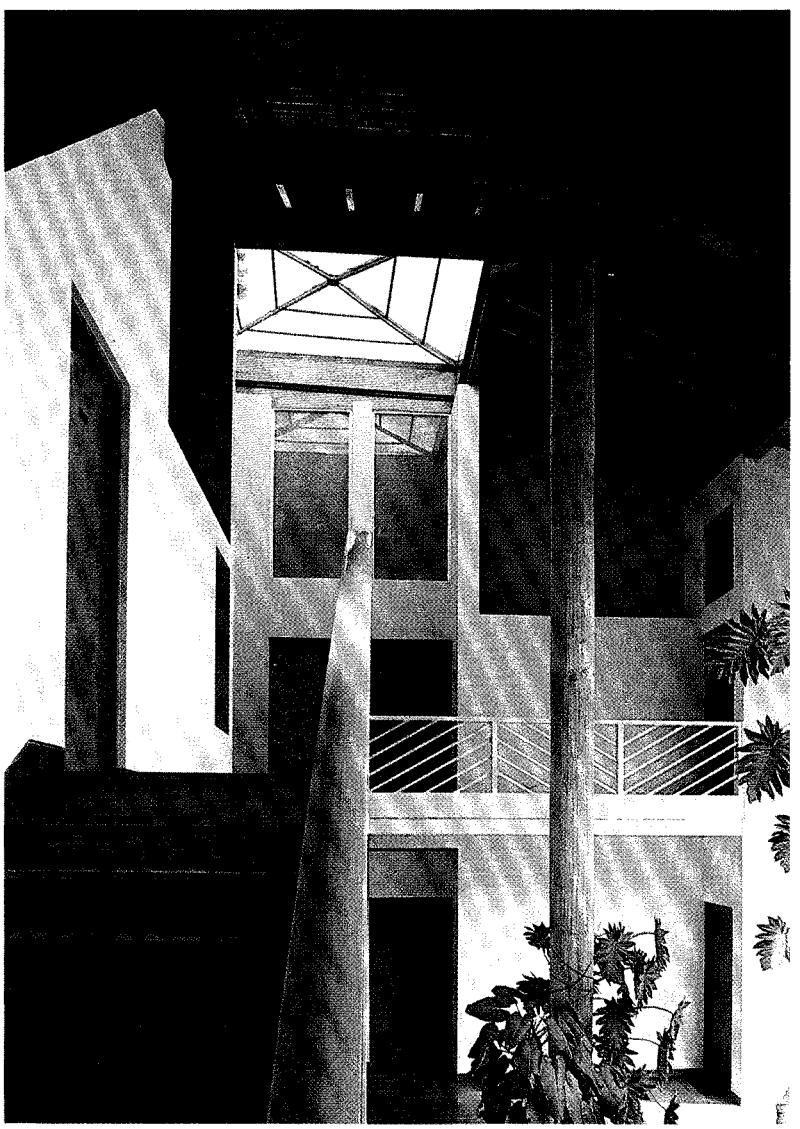
General view from the east.



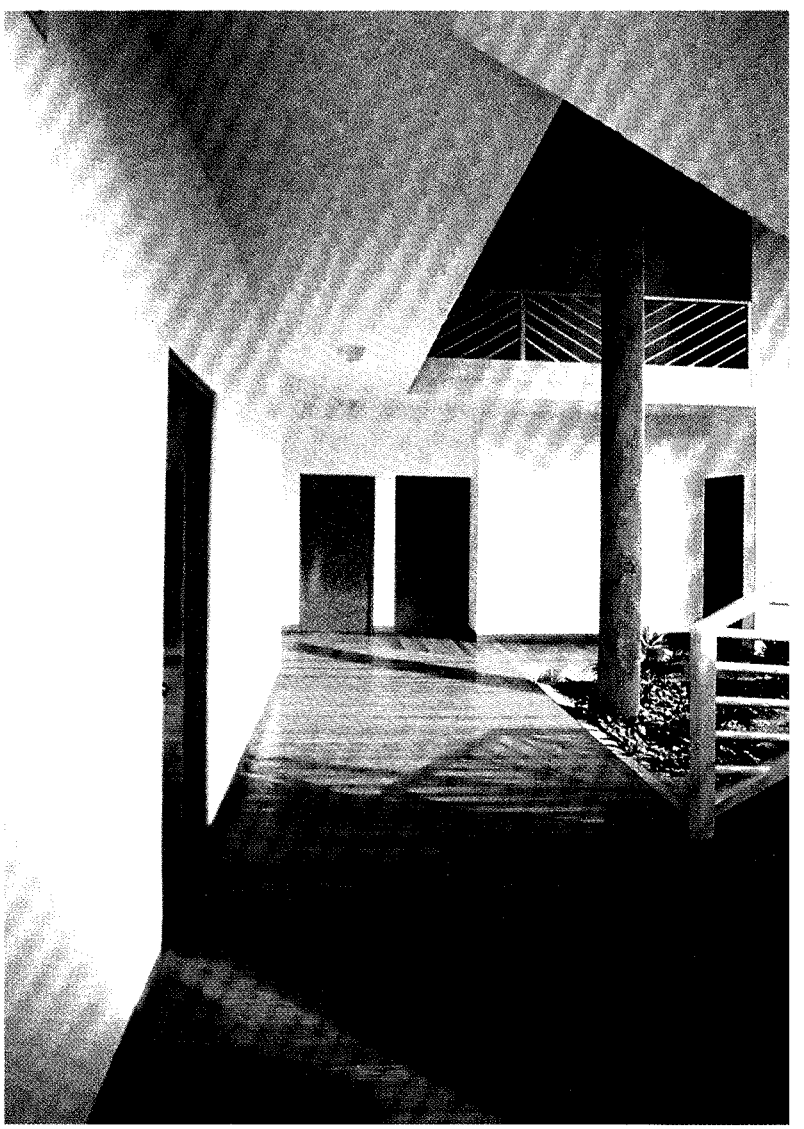
The decks of the public spaces overhanging the water.

Entrance to one of the guest room clusters.

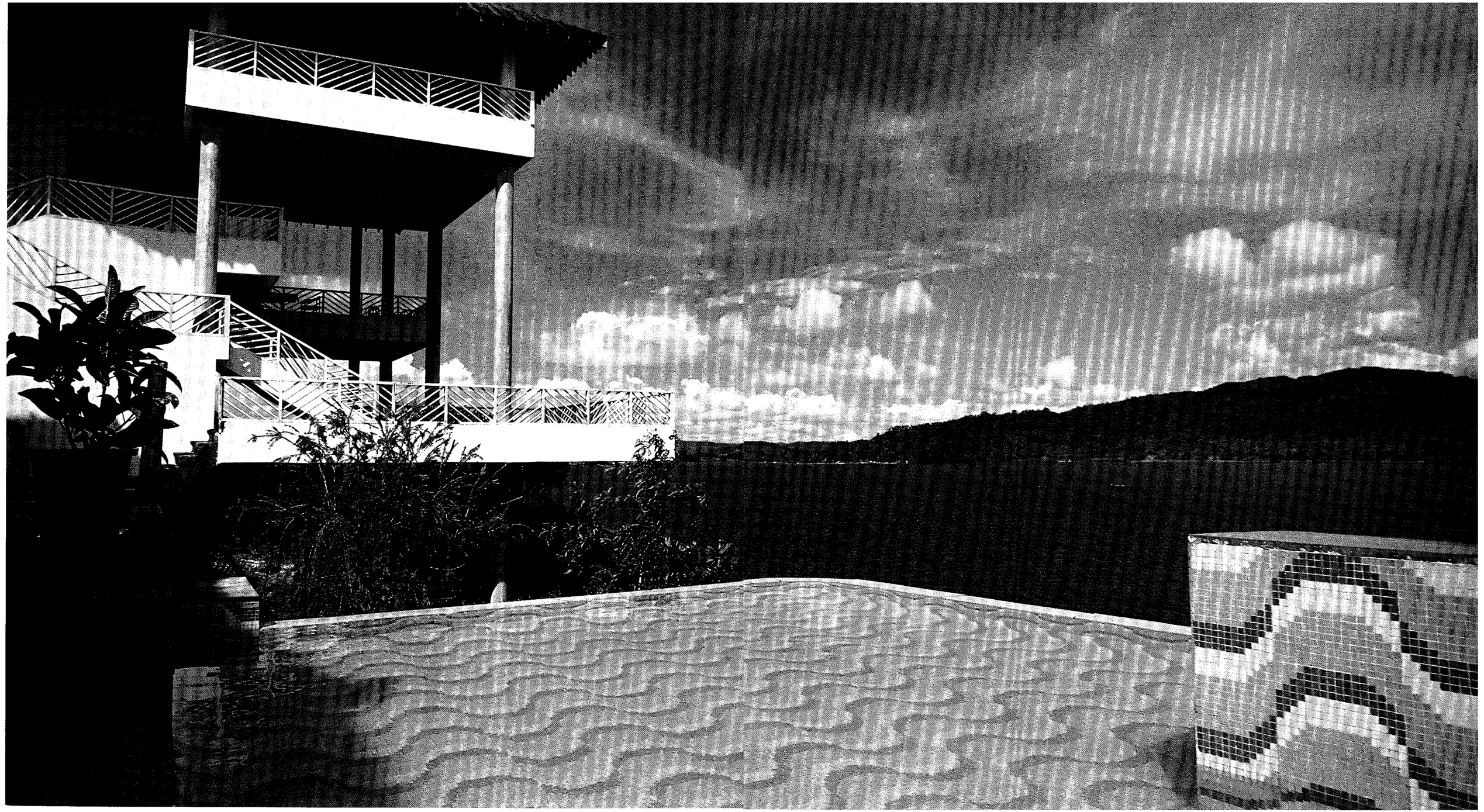
Overleaf: View of the public area across the swimming pool.

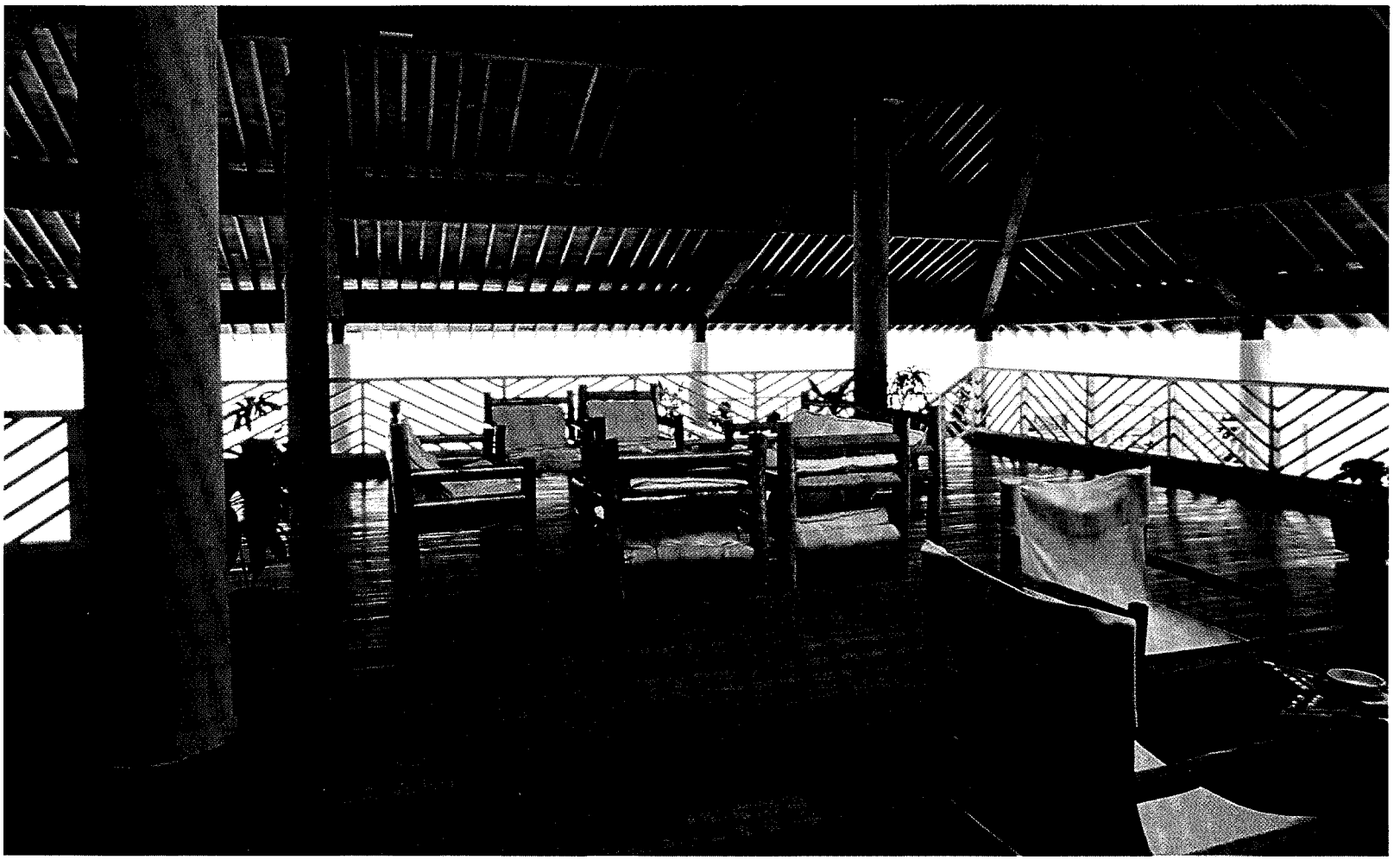


Stairs up to guest rooms.

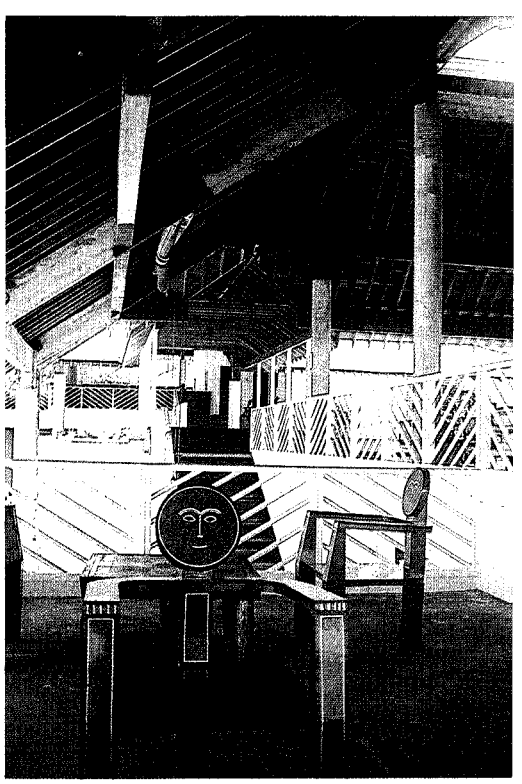


Ground floor level guest rooms arranged in an L-shape.

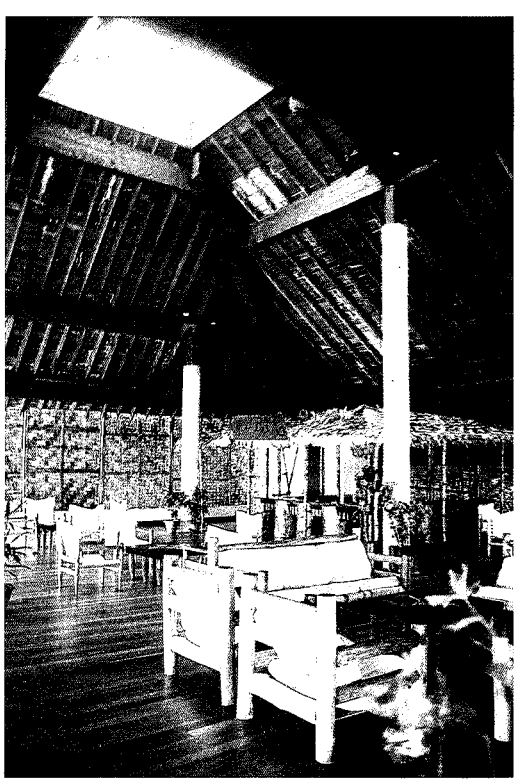




The lounge deck.



Lounge with its light-hearted American inspired furniture.



Skylit lounge.

The *padauk* timber ceiling structure.

Restaurant with its panel painted by a sign-board painter.

Cidade de Goa

Donna Paula, Goa
1978–82

Vasco da Gama: reminder of an historic past.

The palm-fringed beaches of Goa.

Panjim.

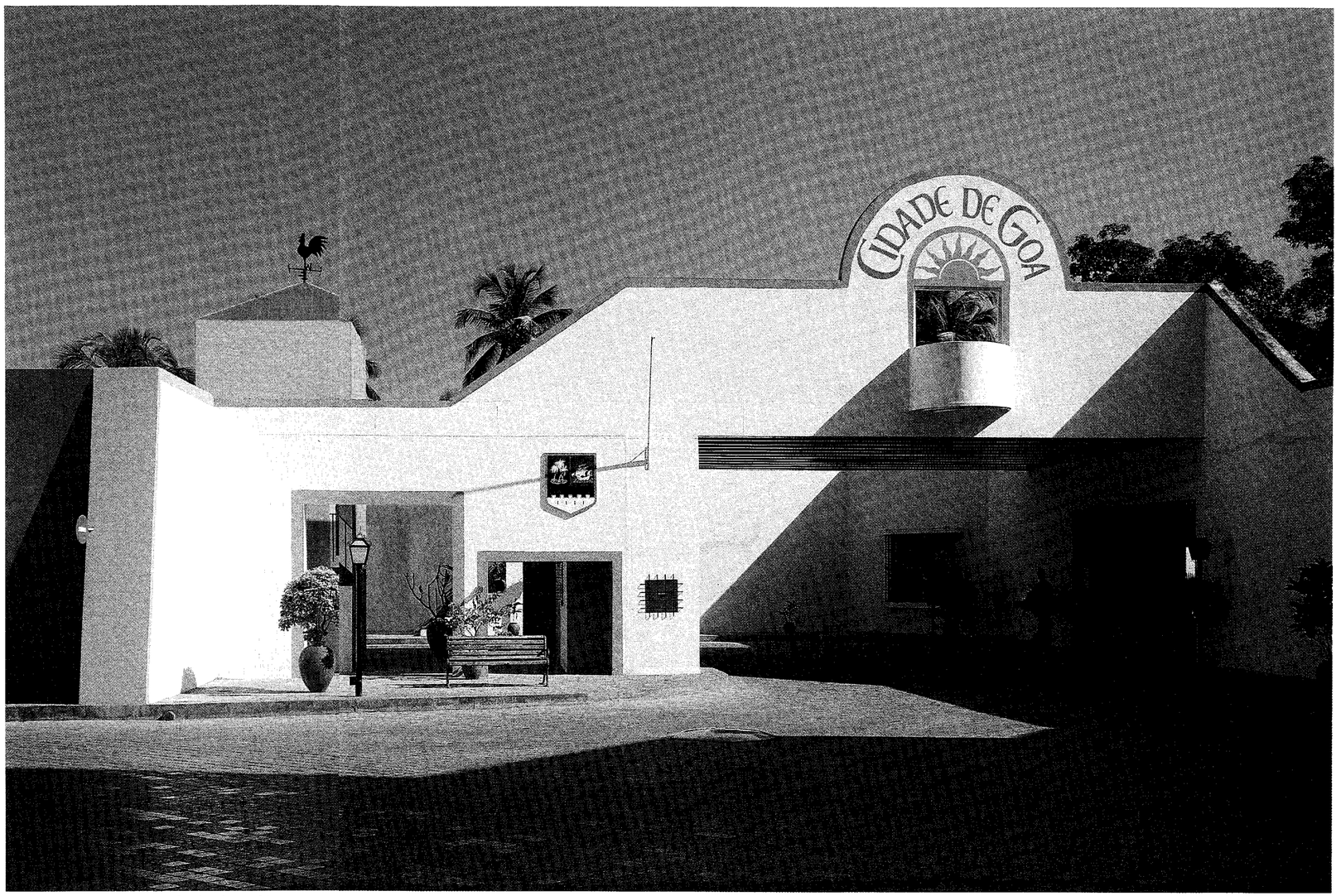
Sited on a hillside by a palm-fringed beach in Goa, which for over four centuries was a part of Portugal, this vacation hotel was completed in 1982. The name Cidade de Goa was the original name for Goa's capital Panaji.

The choice of name for the hotel actually indicated an approach and imagery which emerged after construction was well underway. The place created is a mix of cultures and images from the populist exuberance of Bombay's film-poster painters to create what Brian Taylor, in Mimar 5 (1982), has called; "a kaleidoscopic sequence of visual experiences, historical, mythical, cinematographic, throughout the public spaces of the hotel, unlike anything he has done previously".

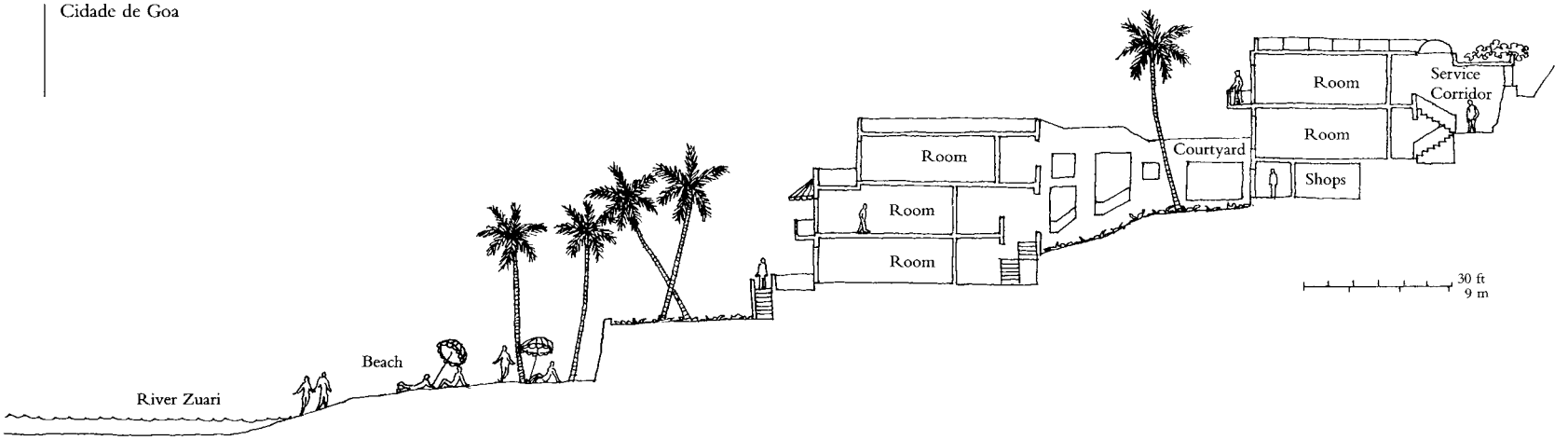
Hotel as "village" has been used so often in recent years that it has become a cliche, but, fortunately, here the architecture does not try to be either overly vernacular or monumental but sets out to explore under the theme of *city*, with allegorical and cultural references within a linear organisation. What one sees is often not what is: the language is neither idiomatic nor purely decorative — it is an extroverted environment to be enjoyed. Correa is very conscious of an image of some mythical city when he describes this work as having "images that are the artifacts of a stage set, others the *trompe l'oeil* of the cinema painter artist. The facades are layers one passes through ... a highly fragmented series of sensations and architectural spaces ... To awaken the bitter-sweet *saudade* of nostalgia ... like the facades of the Alfama (Lisbon's old Moorish quarter) it is an urbane and sardonic art". In this task the architecture is well served by the paintings of Bhiwandkar, a film-poster painter from Bombay, with the painted streets, the timeless clock and the wood cut-out figures guarding doors, among other such references.

The mix of Portuguese, Hindu, Muslim and contemporary western imagery gives rise to an architecture in which there is an interplay between two-dimensional image and three-dimensional form. The reception is the "House of Kadamba" (the Goa Kadambas were a branch of the famous Kadamba dynasty of Karnataka) with the classic Hindu signs of welcome; the plantain tree and the garland of zandu flowers. To its left is the "House of Adil Khan" (the Muslim ruler of Bijapur and Goa who was displaced by the Portuguese) with its low *divans* and luxuriant silks. Ahead are the Portuguese signified by the statues of three conquistadores in conversation. Beyond the lounge the arcaded pedestrian street begins, with its shops starting with a typical Taverna, transversing courtyards, the bedrooms and the public spaces. There are 100 bedrooms which reflect the prototypical Portuguese *cassas* or the *damao* with its Gujarati connection influenced by Hindu imagery. The "Alfama" — the hotel's main restaurant — is on several levels grouped around a plaza — a city square in miniature.

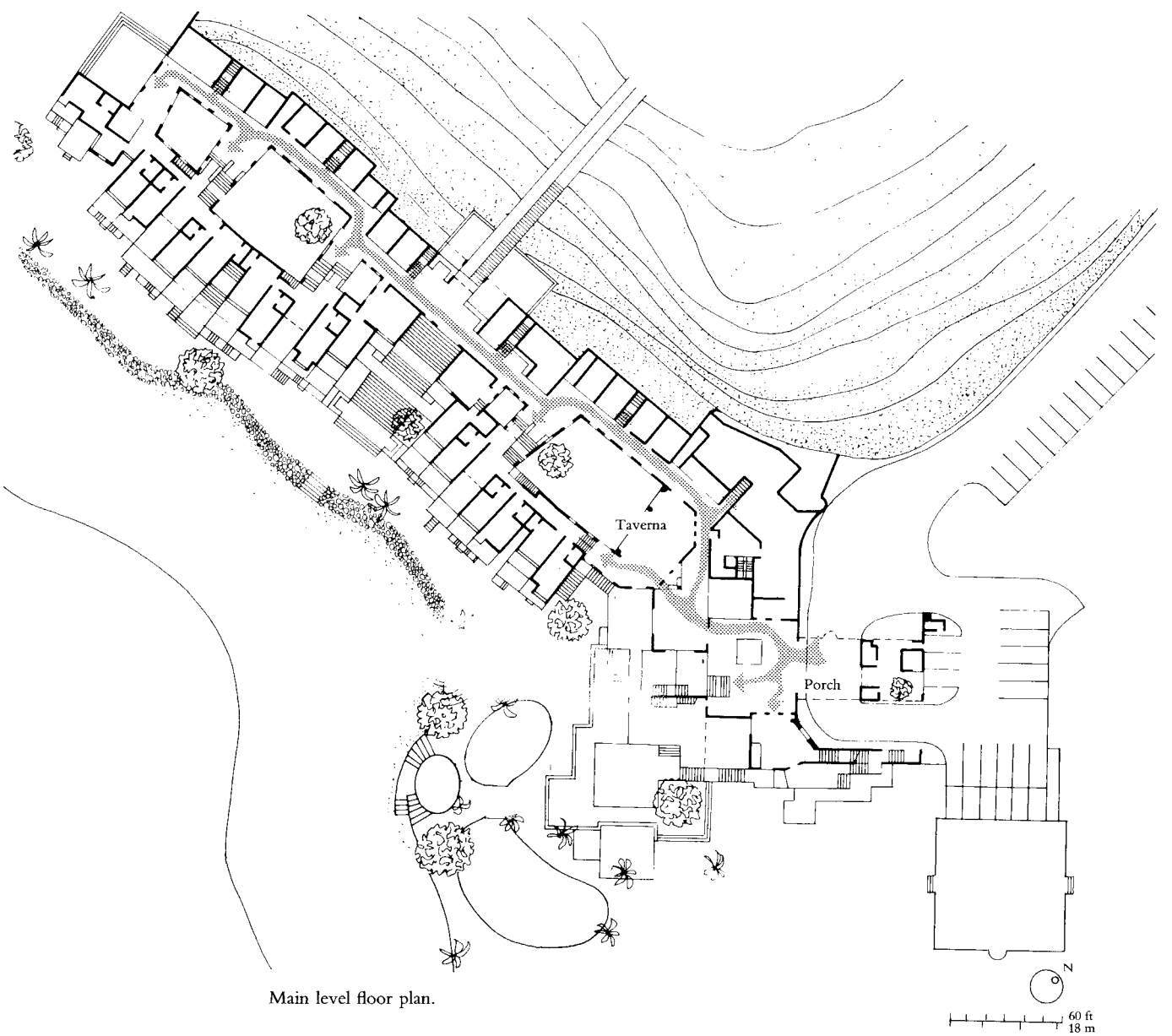
This work, somewhat a departure for the architect (perhaps an experiment) presents a collection of images: a literary statement full of irony and wit — a reflection of the man himself.



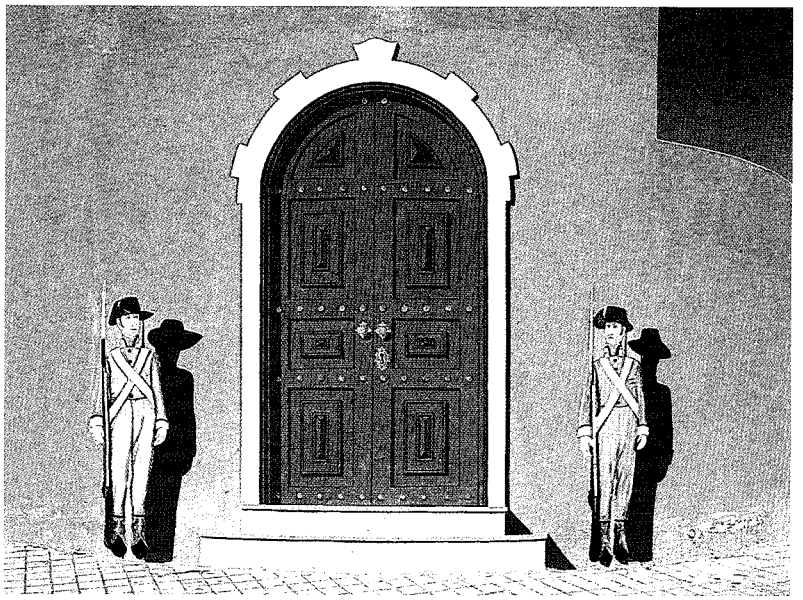
The entrance plaza — a sense of real and unreal images.



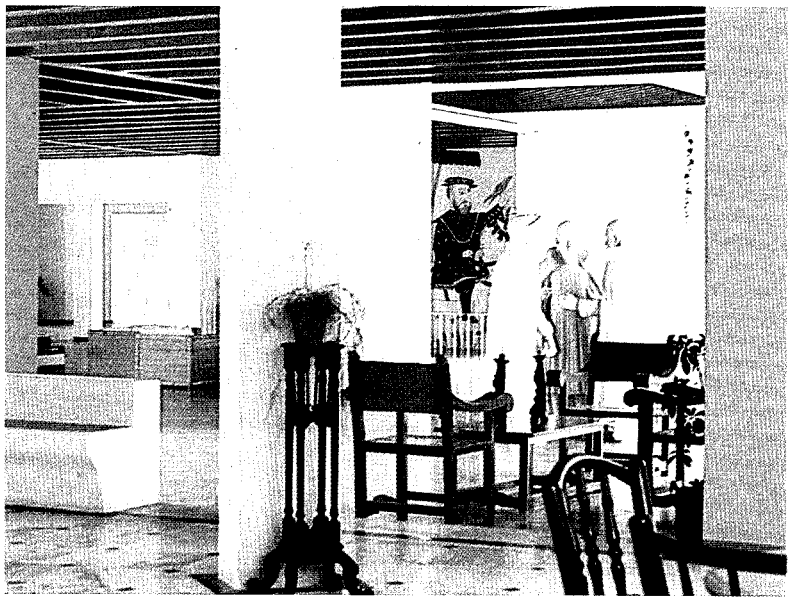
Typical north-south section.



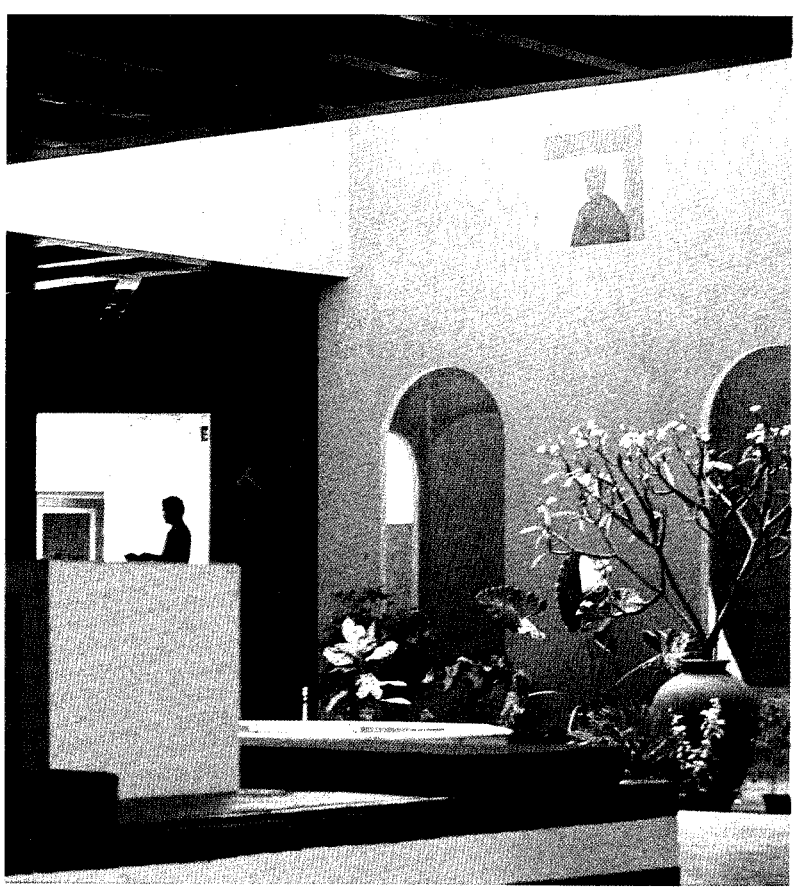
Main level floor plan.



The city virtual: painted soldiers guard a painted door.

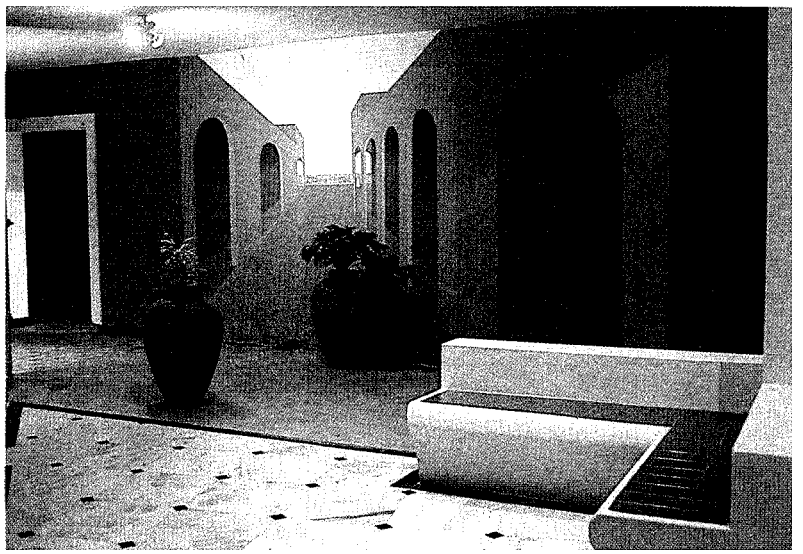


Three conquistadores conversing in the reception area.

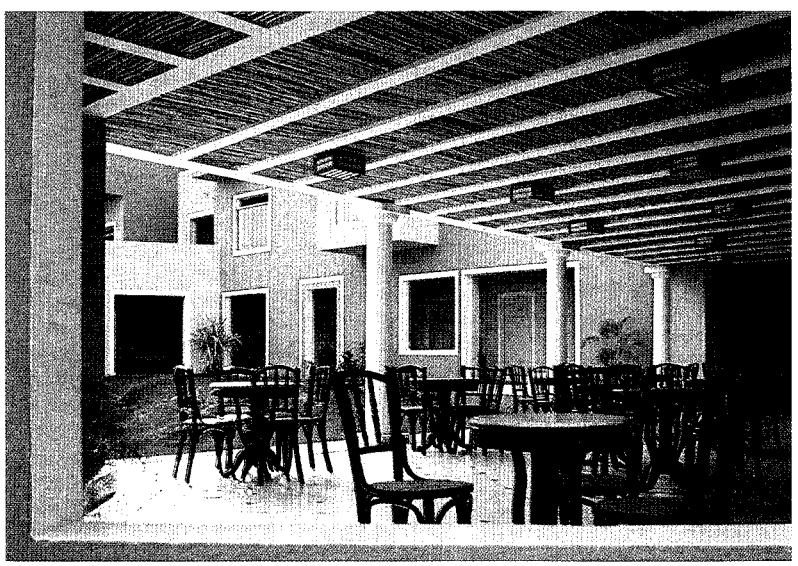


The barman is real. The man at the window pays homage to Chiricco.

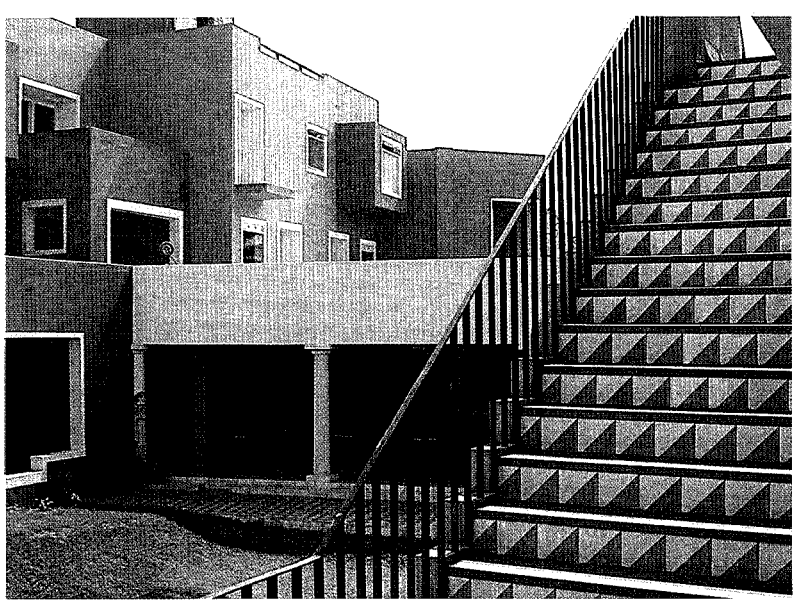
An internal "street".



Creating an unreal street.

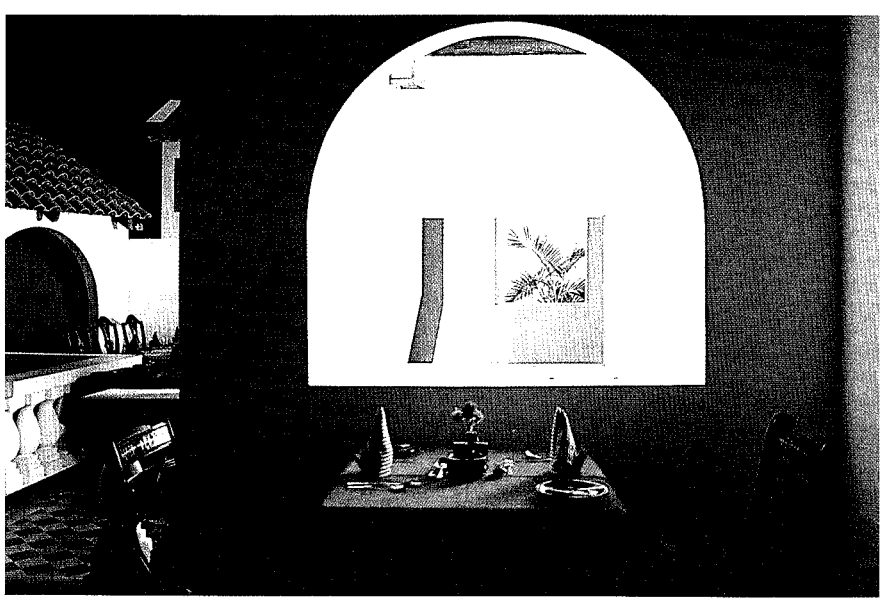


The Taverna.

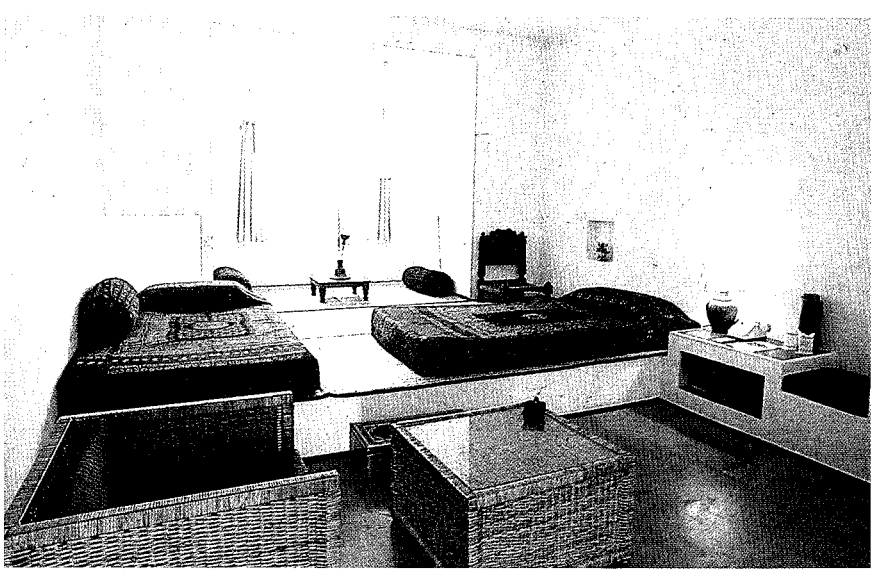


Gardens, walkways, terraces and staircases connect different parts of the hotel.

A courtyard: the man at the window pays homage to Chiricco.

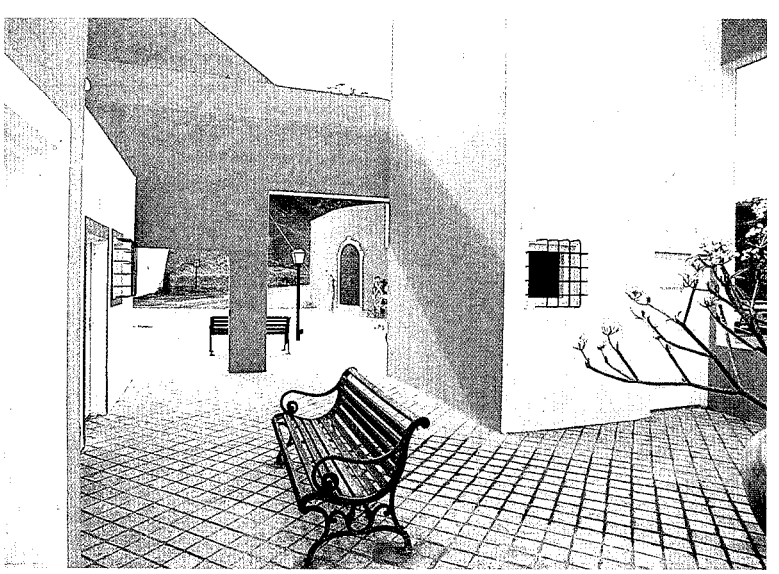


A corner in the "Alfama" restaurant.



One of the *Damao* guest rooms. The sleeping area consists of a mattress placed on an *otla* (platform) covered by *chattai* (rush matting).

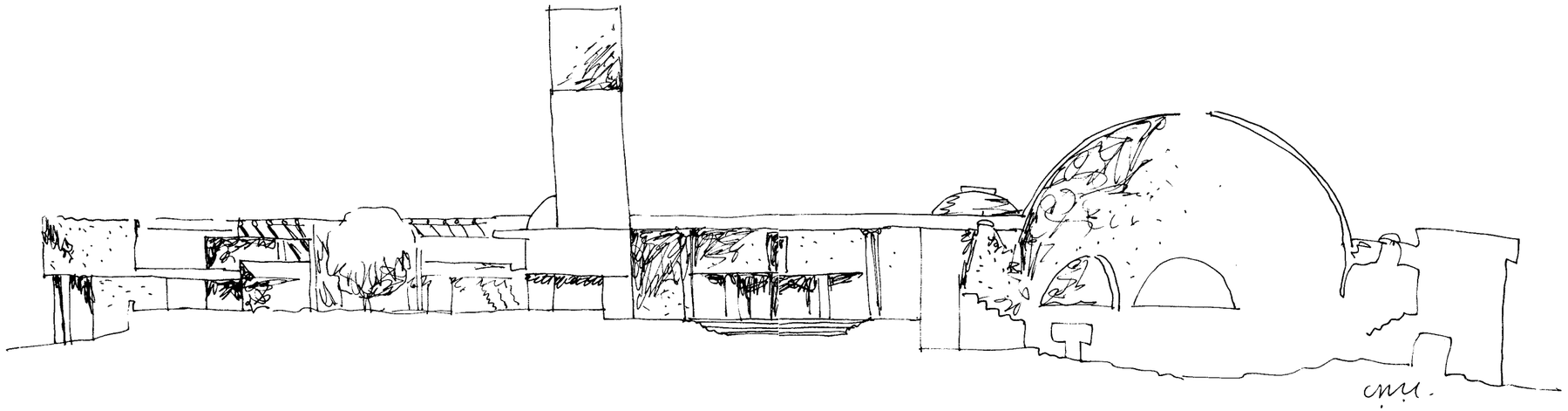
The guest rooms with their balconies overlooking the beach.



An internal street and plaza.

The entrance court at night.

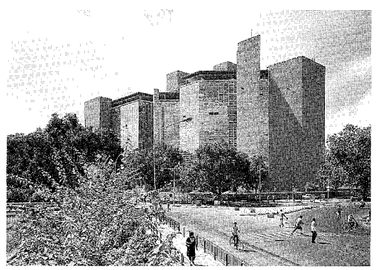
The plaza at night — the city sleeps.



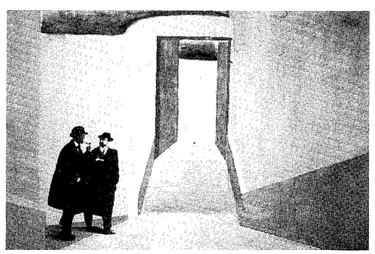
Correa's buildings for public use cover various building types and illustrates several directions in his work. They are mostly public sector commissions and they are all on a medium scale. The architect's building works do not extend to the mega-project scale of a whole university or even Lutyen's Delhi building scheme: but they are as complex as any of the larger projects. One of the characteristics of his public buildings is that they incorporate complex ideas and forms that are expressed in their complexity and yet, through their organisation, reveal a fairly easily discernable pattern.

The preoccupation with the "theatre of life" is pursued in his arts centres, in the religious buildings, in the office projects and in his State assembly complexes. The buildings illustrated in this section of the book have that in common. Cidade de Goa hotel (1982) has much in common with the theatres at the Kala Akademi (1983) and the LIC Centre (1980). The stage set and the play — both real and imagined — have been turned into architecture, as with the LIC office building where the proscenium dominates and the everyday life that comes into contact with the building is presented as theatre.

The LIC Centre in Delhi presents the observer with a contradiction — a contradiction between what the architect has written about the "glass box" and his response. "With its all-glazed reflecting surface facing Connaught Place, the building shares some essential characteristics with the Miesian box set in a sea of open space, an architectural solution which has been severely criticised by Correa in the past."[1]



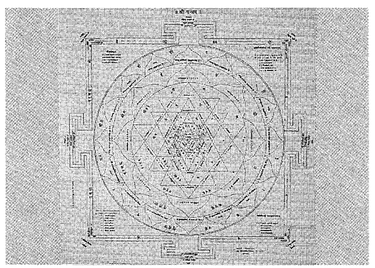
The building as a stage — the LIC Centre.



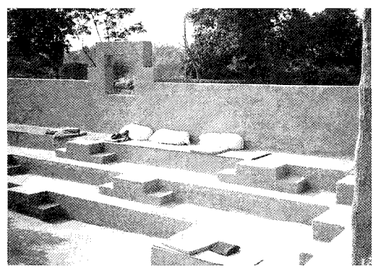
"Mies Van der Rohe and Le Corbusier meeting to change the world": a mural in the Kala Akademi.

Correa turns normal perceptions around — in this he is the schemer who aligns himself to the great place-makers such as Le Corbusier and Louis Kahn. In his Kala Akademi he illustrates this in a mural which he says is "Mies and Corb coming around the corner to change the world". While a little tongue-in-cheek, this is actually not far from his perception of himself as an agent of change.

The architect's concern with complexity and order is in a sense like that of Robert Venturi's, but it takes on a different guise. Correa's complexity is clarified by the overall patterning — the "single idea" of earlier works — without resorting to a simple "tattooing" of a building to create an effect or give it an identity. His buildings are always broken down into their elements (his kit of parts), using a vocabulary that repeats itself to make a point. This "disaggregation" of space is achieved either through the juxtaposition of forms themselves or other elements such as light and colour, or (usually) in a combination of both, as in the recent Archaeology Museum which creates an enclosure using a winding (necklace) wall and top-lights to bathe an area in light or concentrate it on a particular object. The buildings are strung along the *outside* of this wall. This idea which he calls "the inside-out sock" was first used in his project for the Kapur Guest House of 1978 where earth wall encloses a courtyard on whose other side are the rooms.



A traditional Indian *yantra*.



Surya Kund — the wall as organisation of space.

The Salvacao Church is an interesting case. Built in 1977, it remained as designed until, some ten years later, the architect changed it, softening it to conform with his current thinking. The alterations are few and subtle but they give the building a new and different feel. It is not often that one can trace the development of an architect through a single building. (Perhaps, ten years from now he will make yet more changes/additions — that would be instructive.)

Correa's architecture becomes more refined through time without losing the raw power of earlier less mature works. The single message directional buildings are leading to an architecture that is not just personal to him but also a model of how to design for a hot climate.

The architect has in the past ten years also become far more articulate and international in the communication of his ideas. Certainly the recognition of his importance on an international level, whether by his *alma mater* by way of an honorary Doctorate, or by Her Majesty Queen Elizabeth II with the Royal Gold Medal in 1984, has helped his development. Perhaps an important contribution to his "presence" in architecture, aside from his active teaching both in America and, more recently in 1985, as the Nehru professor at Cambridge, England, has been his vast exposure as a member of the Steering Committee of the Aga Khan Award for Architecture since 1977 to other Third World communities. Being both personable and interesting, with a great deal to say he has taken every opportunity to air his views — and today is a spokesman for contemporary Third World architecture, both in the East and the West.

His architecture, like the man, continues to mature and grow. In recent years Correa's attention has been directed towards symbolic and metaphysical images: a conceptualising of form beyond that which is just "problem solving" in terms of environmental and economic considerations. He pursues the Big Idea with a single-mindedness which is both his weakness and his strength; for when it fails it remains banal, though interesting, but when it works it becomes wonderous.

[1] Serenyi, Peter, "Charles Correa" (a book review) *Journal of Arts and Ideas*, India, April-June 1984, p.85.

Salvacao Church

Dadar, Bombay
1974–77, 1983–85

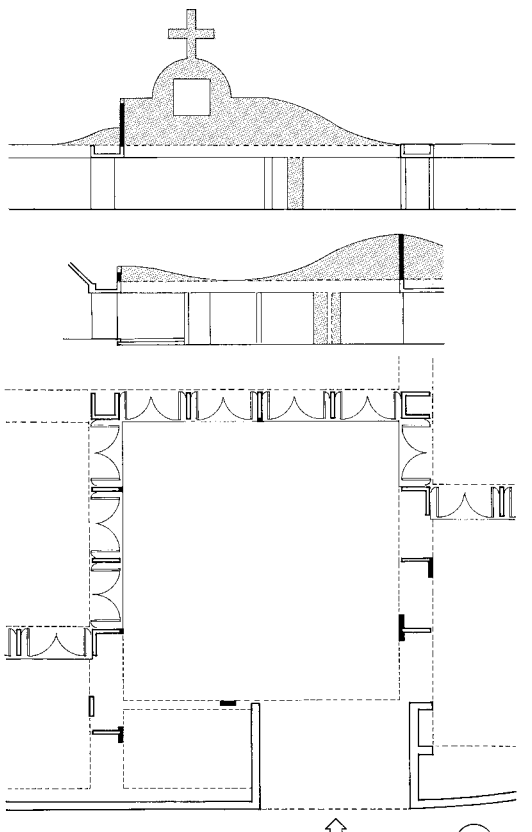
Taking a series of ideas from early Christian churches, the architect has attempted a return to original basics. The design is based on the life of Christ expressed through Baptism, the Public Life and the Crucifixion; each of these corresponding theologically to Preparation, Instruction or Enlightenment and the Final Sacrifice. Liturgically, these ideas find their expression in the Baptismal Font and Confessionals; the Pulpit and Altar; and the Tabernacle. In the early churches the plan and disposition of physical elements clearly reflected these concerns. In later churches these elements were integrated under essentially one major space.

The design of this church in the Dadar neighbourhood of Bombay commenced in 1974 and the work completed in 1977. The church consists of a series of interlocking courtyards and covered spaces which allows any of the functions to take place indoors or outdoors depending on the weather. The covered spaces are caped by giant concrete shells (the "canons" of earlier works) which act as flues for the rising hot air. All the areas, both indoor and outdoor, interconnect so that the spaces — and the breezes — flow across the site.

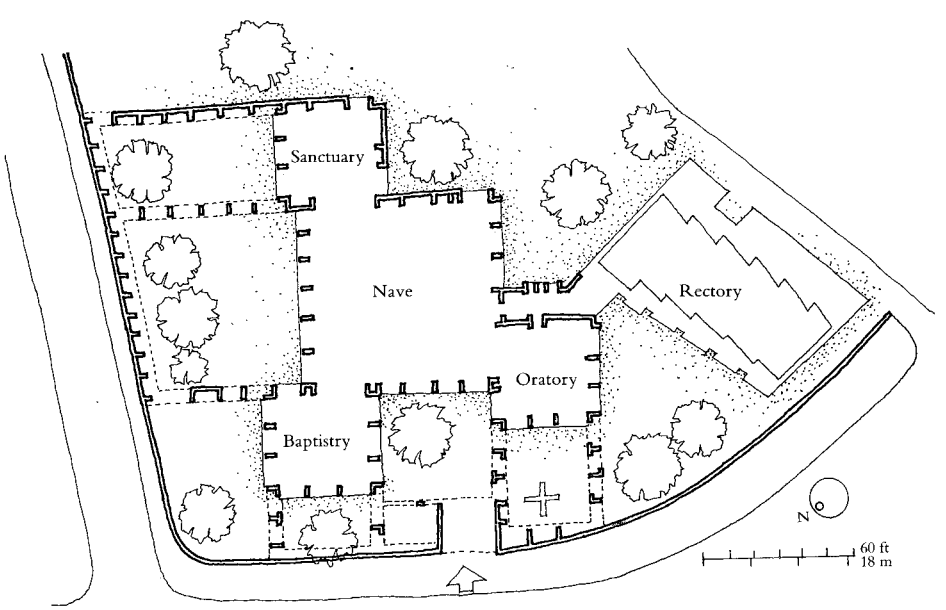
The bare strength of the exposed concretework provides a stark environment for worship. This use of concrete in the structure and paving, the use of simple woodwork and furniture contrasts with the richness of the altar and the fresco on glass by the famed Indian artist Maqbool Fida Husain for the ceiling light of the main shell. In the architect's concept this area represents the extrovert and social aspects of religion. Husain's work illustrates the Biblical tale of the "Loaves and Fishes" in the glass painting which is divided into several segments in the manner of stained-glass windows. The artist has been commissioned to paint a fresco for the ceiling in the same space. The fresco, on the enormous warped shell surface, will depict a giant image of Christ as shepherd watching over his flock. Husain intends to dedicate the fresco to Cimabue, the fountainhead of Italian Renaissance painting, and intends to use the strong concrete patterns and textures to give his work a lean and muscular line.

Over the years, due to the humid climate of Bombay, the exposed concrete discoloured and it became necessary to paint the outer shells and beams. In 1983 Correa added to the entrance area of the church and changed the facades to add curves where once there were straight lines, re-inventing the RCC matrix at which the "cannons" sit and by the addition of brick stub walls. This softens the Corbusian forms he originally used to create the church which adapted the "closed-box architecture of the North" to Indian conditions.

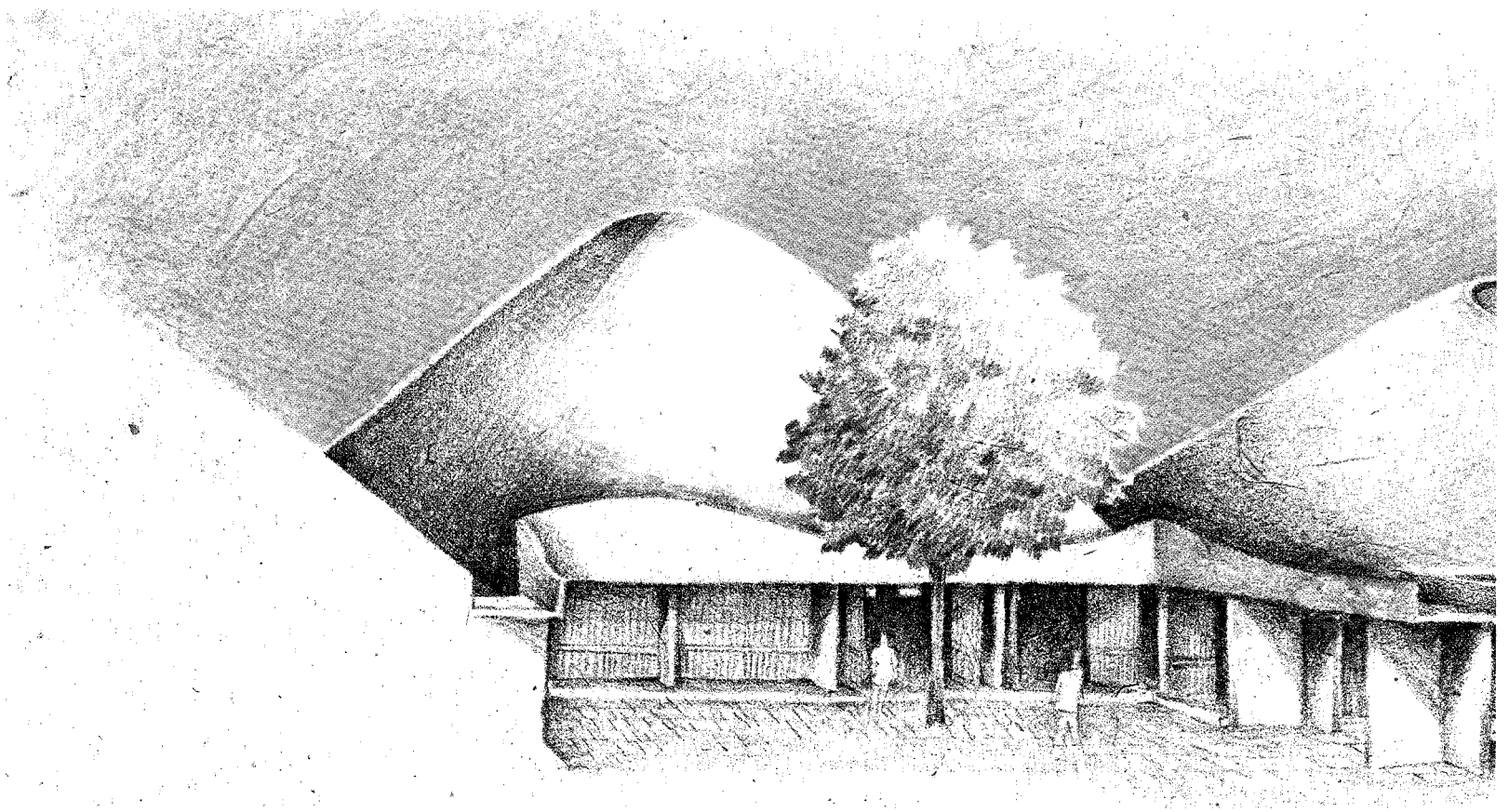
The changes, some ten years after the building's conception, the architect has enriched views across the site, generated additional alcoves for worship, and created a more evocative and flamboyant building in this new context.



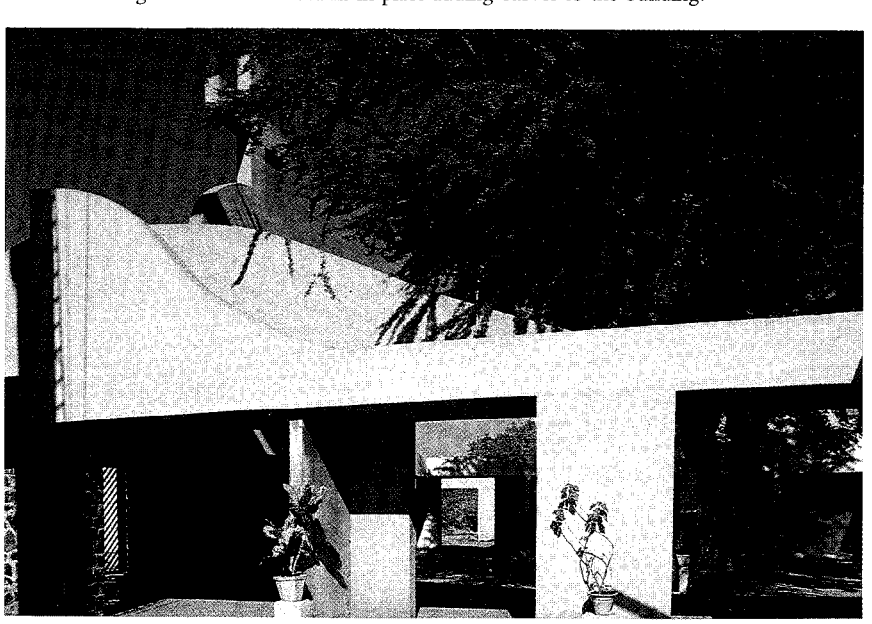
Recent additions to the church (shown in grey).



Plan.

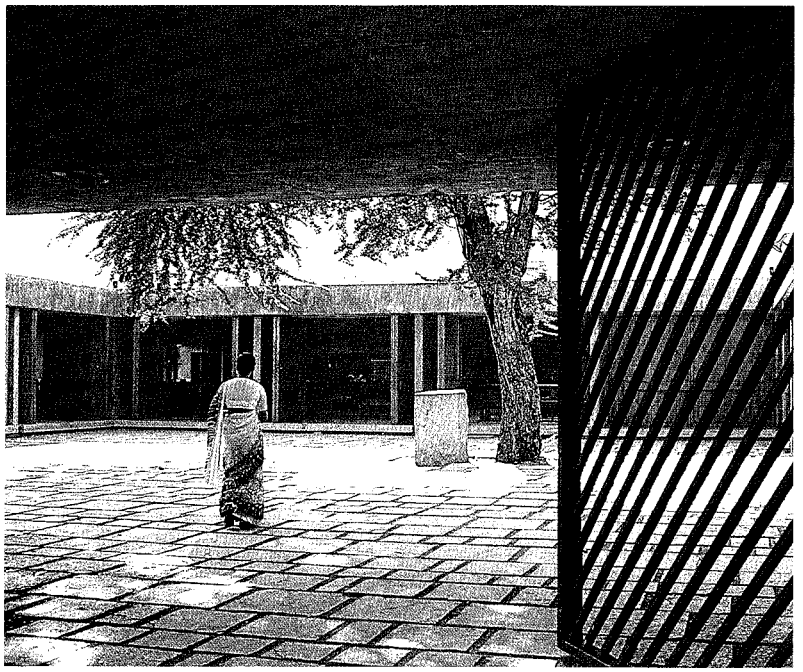


Sketch showing the new screen beams in place adding curves to the building.

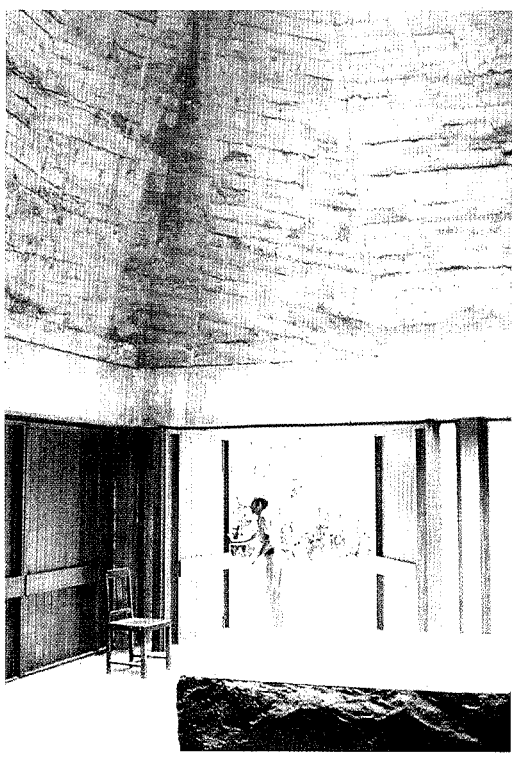


Extension to the entrance area.

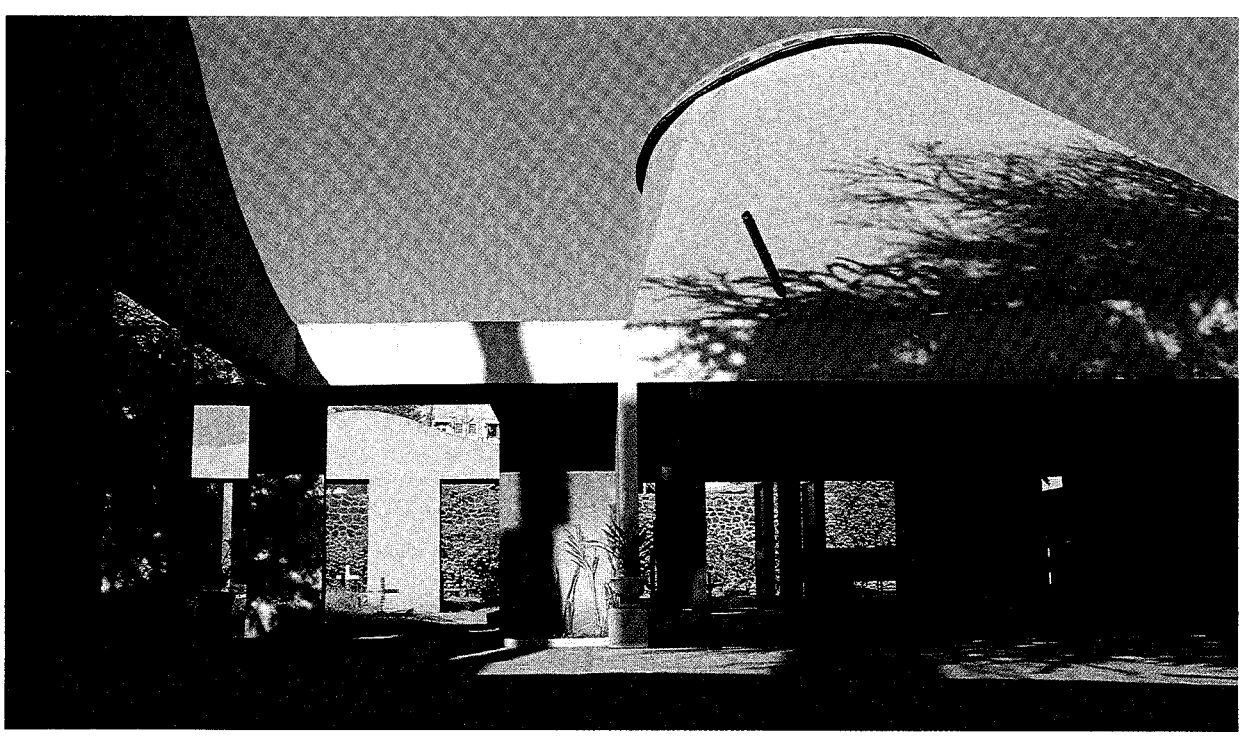
General view in 1977 before the changes to the facade beams.



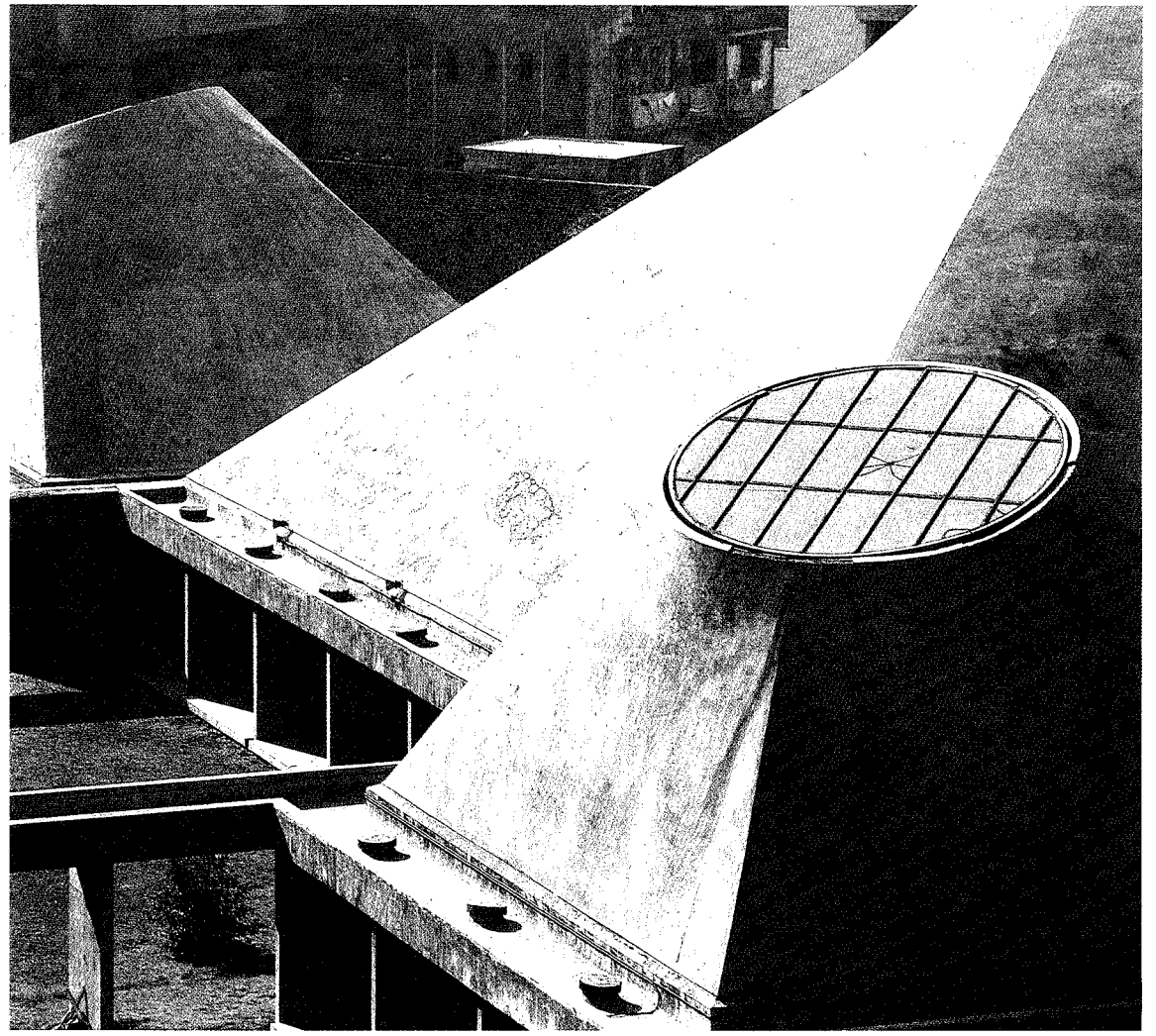
Entrance courtyard.



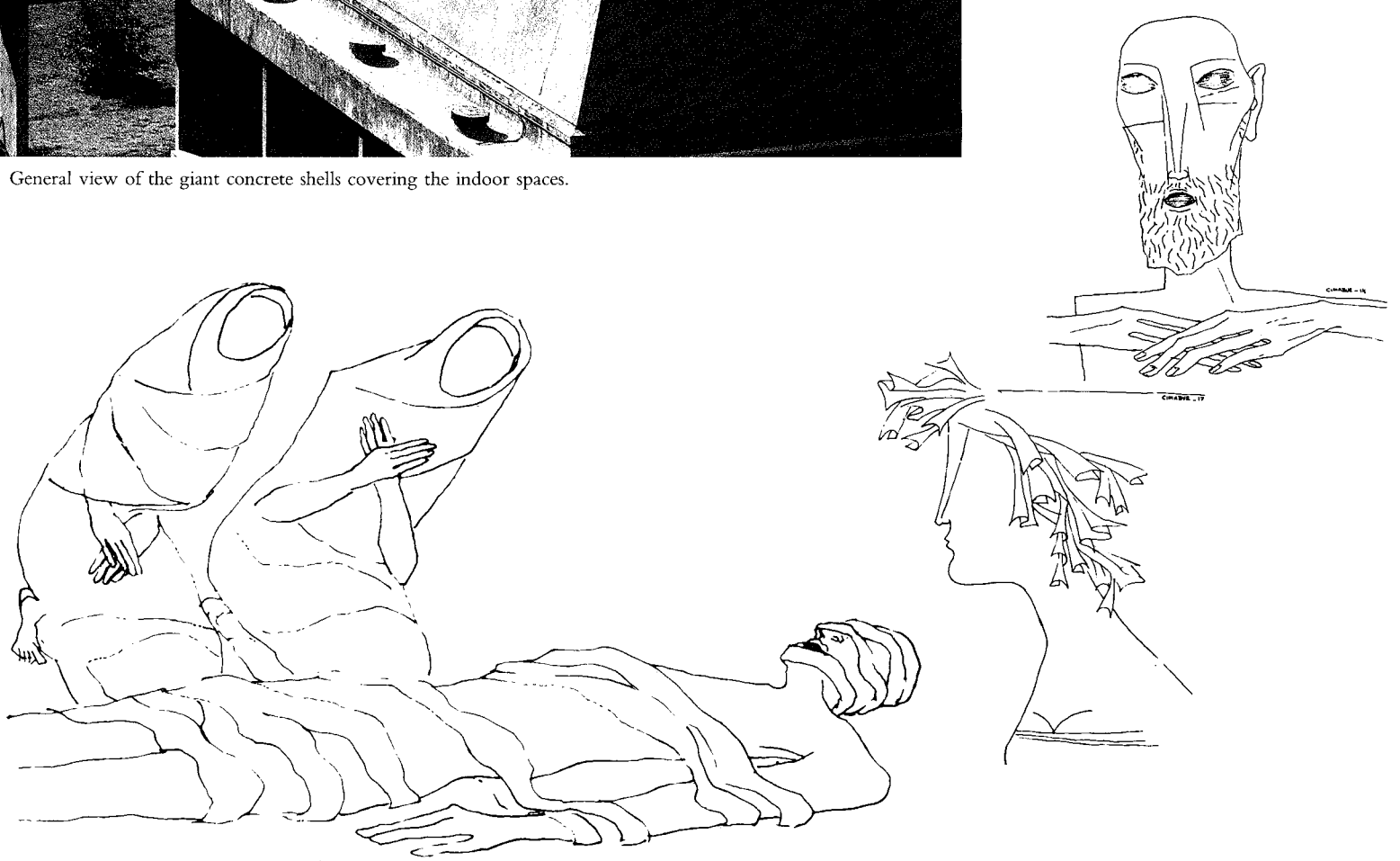
Baptistry.



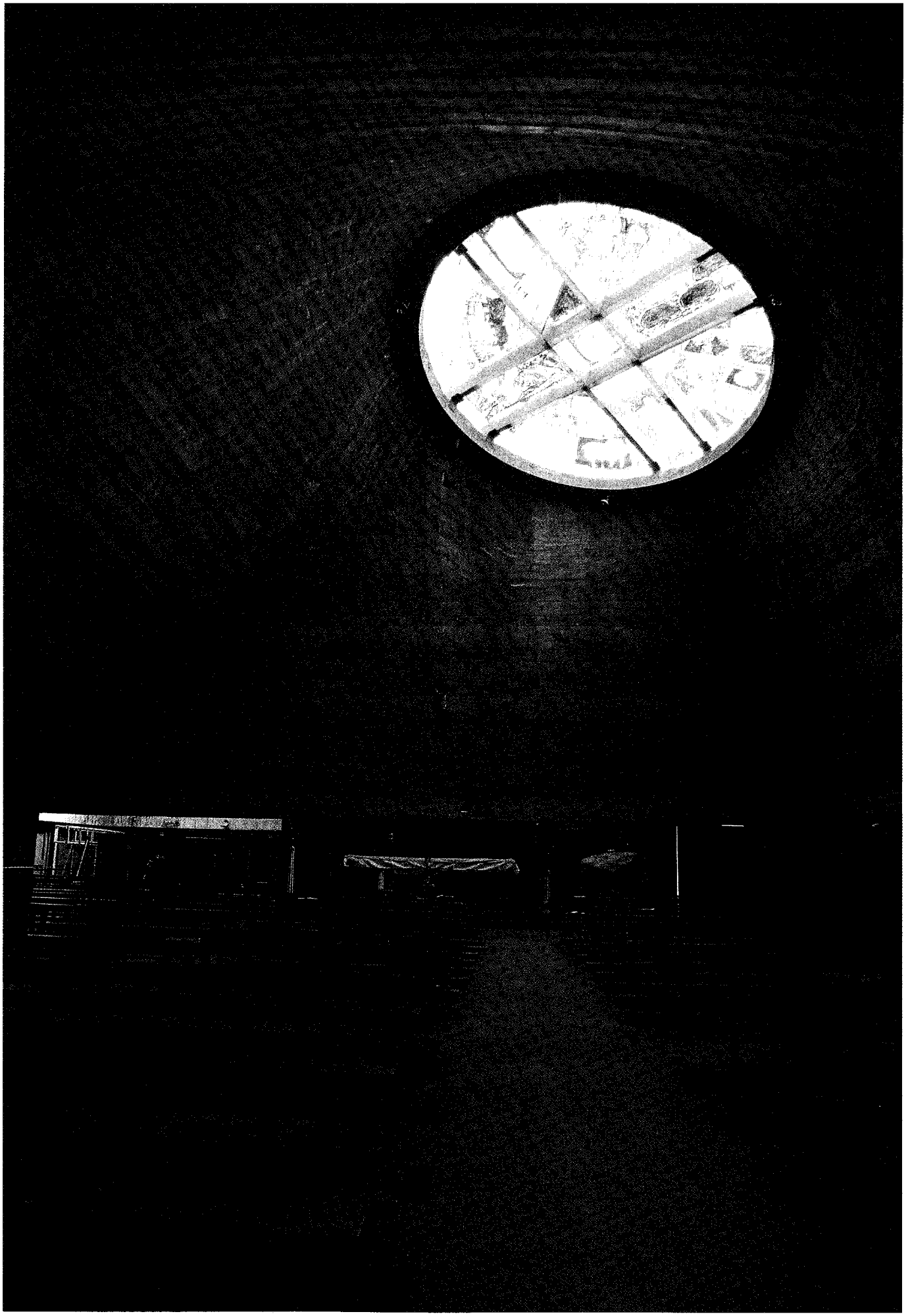
View in 1985 from courtyard.



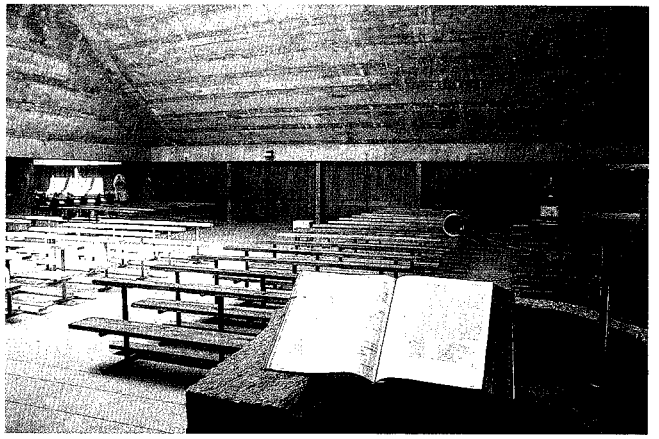
General view of the giant concrete shells covering the indoor spaces.



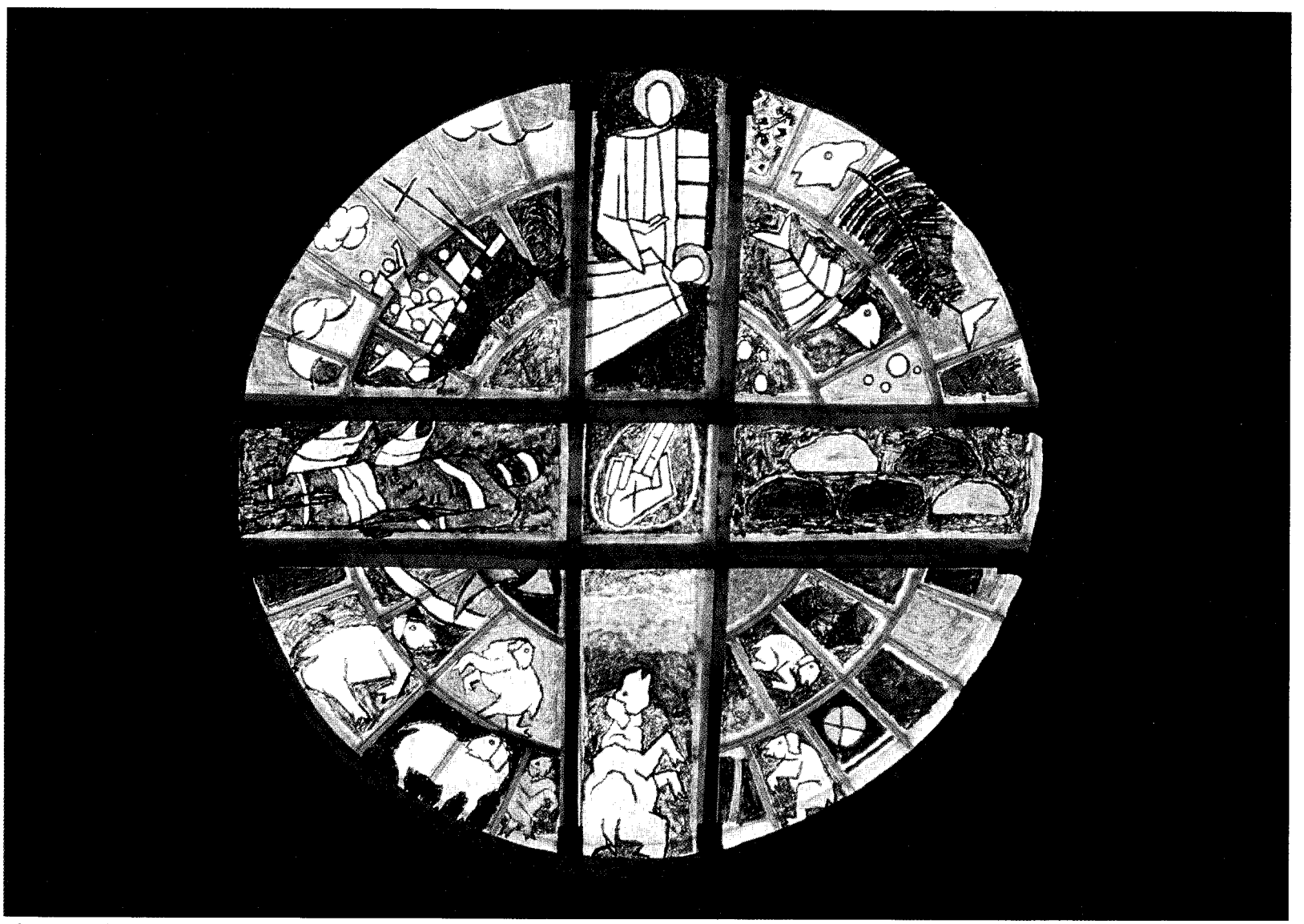
Drawing for Husain's proposed mural.



Nave view towards the altar.



Nave.



The painting by Husain in the ceiling light of the main central shell.

Bharat Bhavan

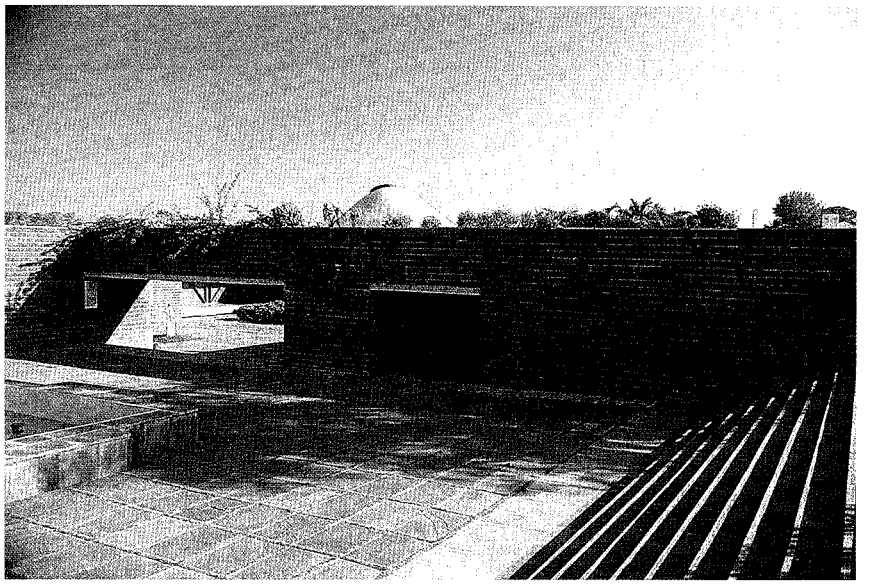
Bhopal
1975–81

The site for this arts centre is on a gently sloping plateau overlooking the lake in Bhopal. The natural contours of the site have been used to create a series of sunken courts and terrace gardens around which a number of cultural facilities are organised. These cover a wide range and include a museum of Tribal Art, a library of Indian Poetry (in all the seventeen major languages of India), galleries for Contemporary Art, workshops for lithography and sculptures, and a studio for an artist-in-residence. Bharat Bhavan (literally "India House") houses a full-fledged theatre repertoire company and extensive facilities for the performing arts, including the *Antarang* (indoor auditorium) and the *Bhairang* (open-air amphitheatre) overlooking the lake.

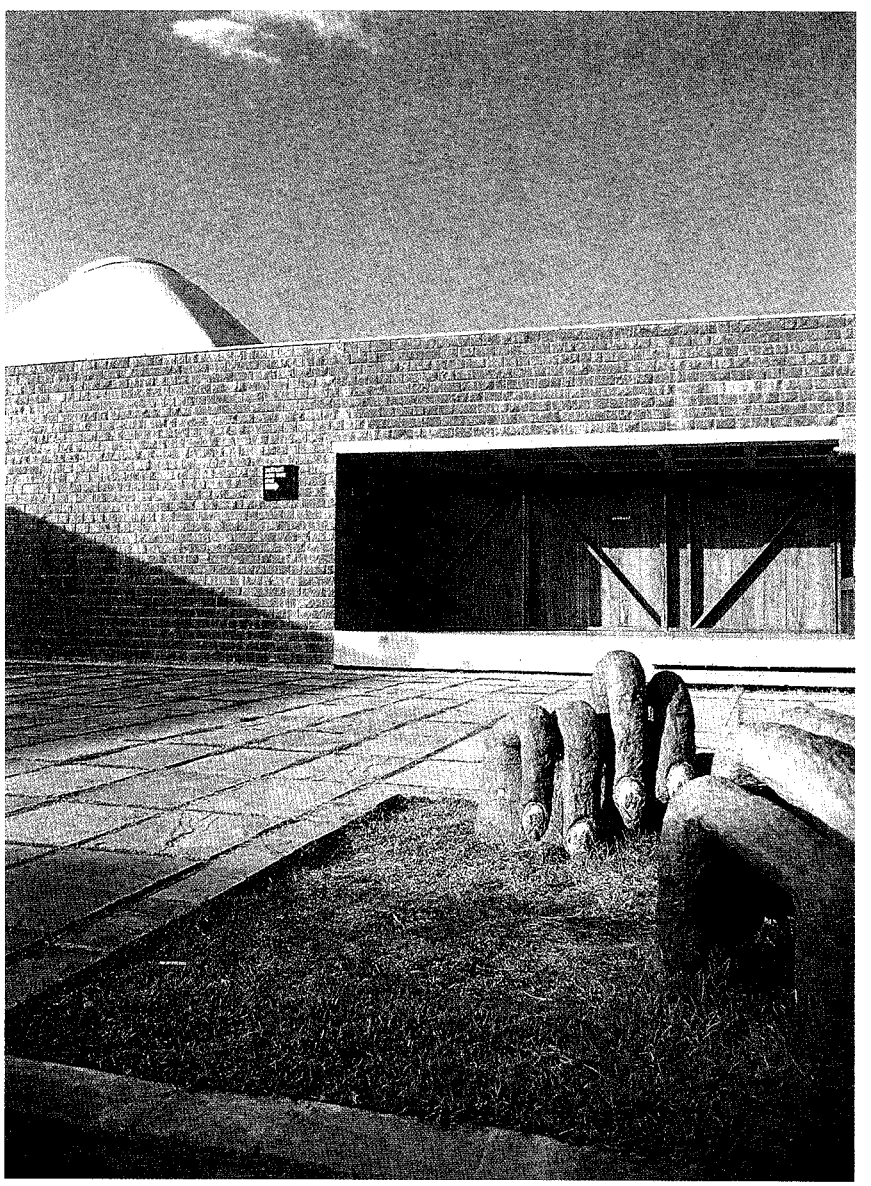
The terraces and courtyards once again reflect Correa's concern with progression through space — the maze or puzzle — where parts are casually revealed and the complex of internal streets act rather like a village layout. In this way the architect makes the building reflect Bhopal's own organisational layout.

Another device, the top lit "cannon", provides the lighting and ventilation to the sunken covered spaces. In addition to these, the openings to the courtyards and terraces have two sets of shutters: the inner ones consisting of a combination of glass and openable panels for ventilation, and the outer ones with large wooden doors which can be closed for security.

The centre, which started in 1975 and was completed in 1981, is one of Correa's most sophisticated expressions of the ideas of "maze"; of "progression"; of his early structural and design statements. It also combines these with a respect for landscape and site which becomes even more profound in his later works. For these reasons Bharat Bhavan is one of his key projects.

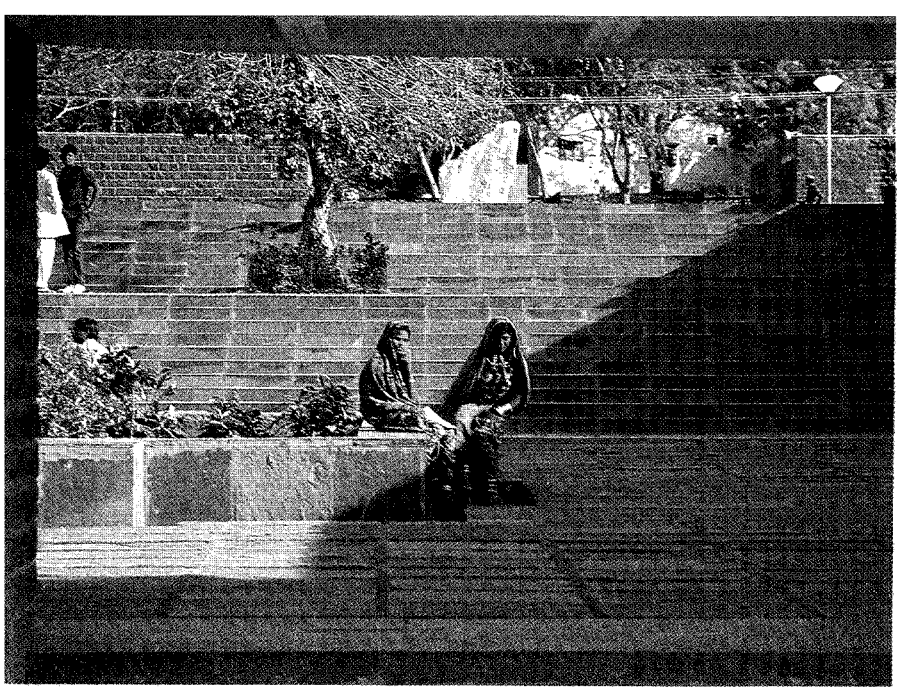


Entrance.

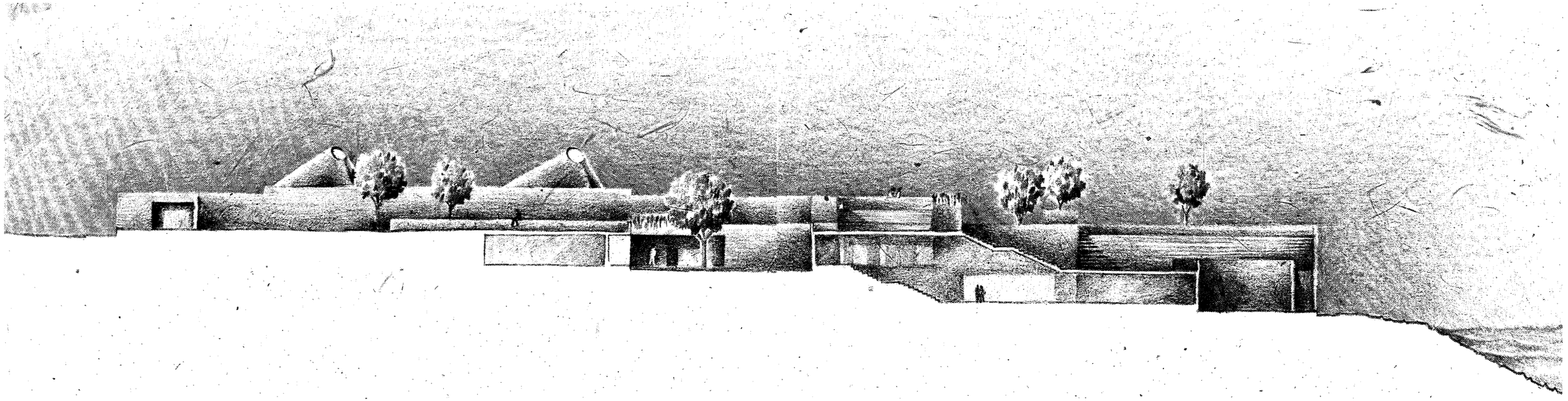


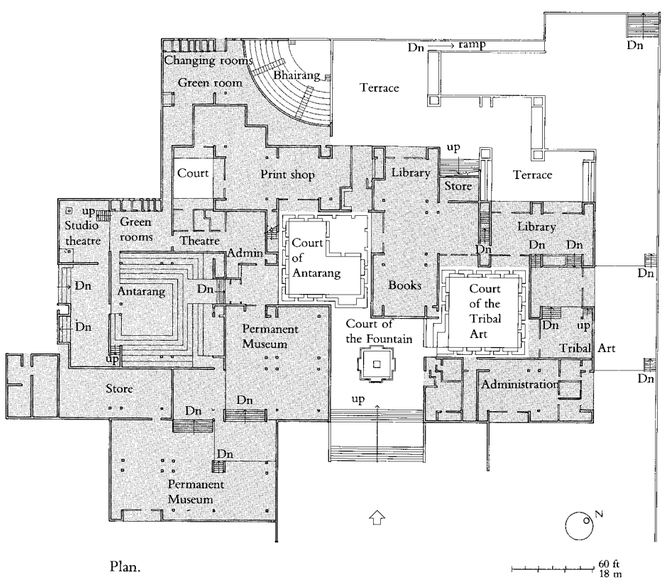
Courtyard of the museum of Tribal Art.

Terrace gardens overlooking the city of Bhopal.

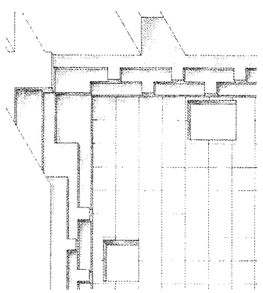


View back towards the entrance

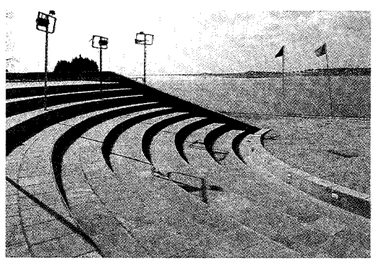


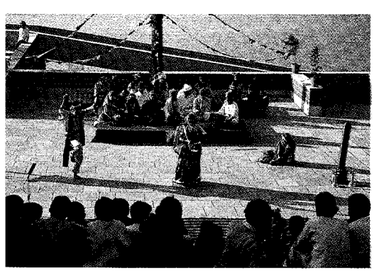


Plan.

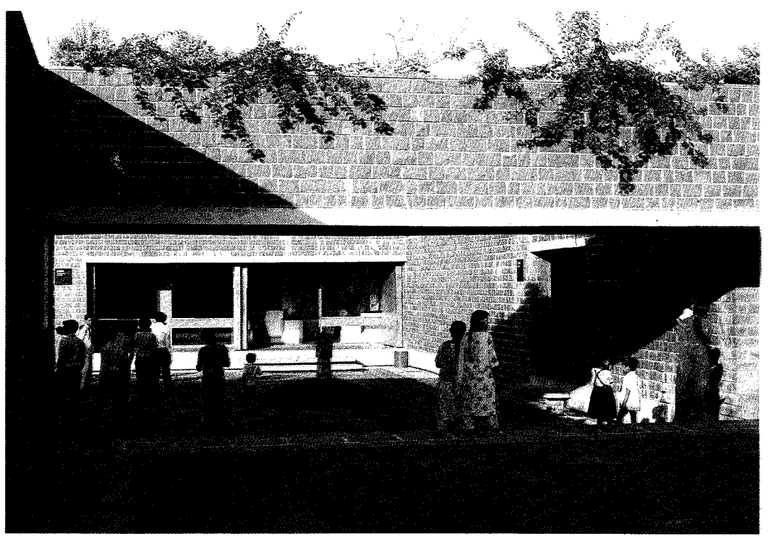


Detail of steps in the manner of the bathing *ghats*.

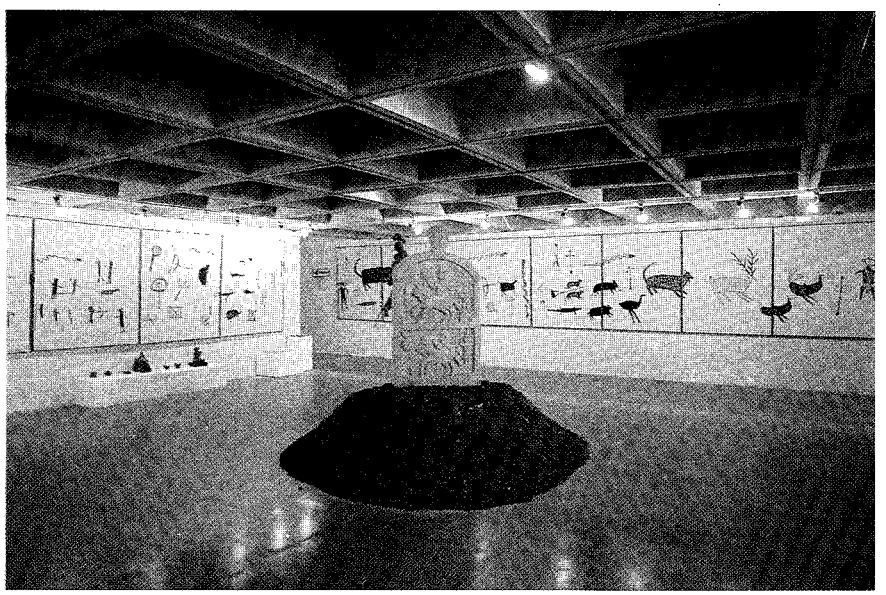




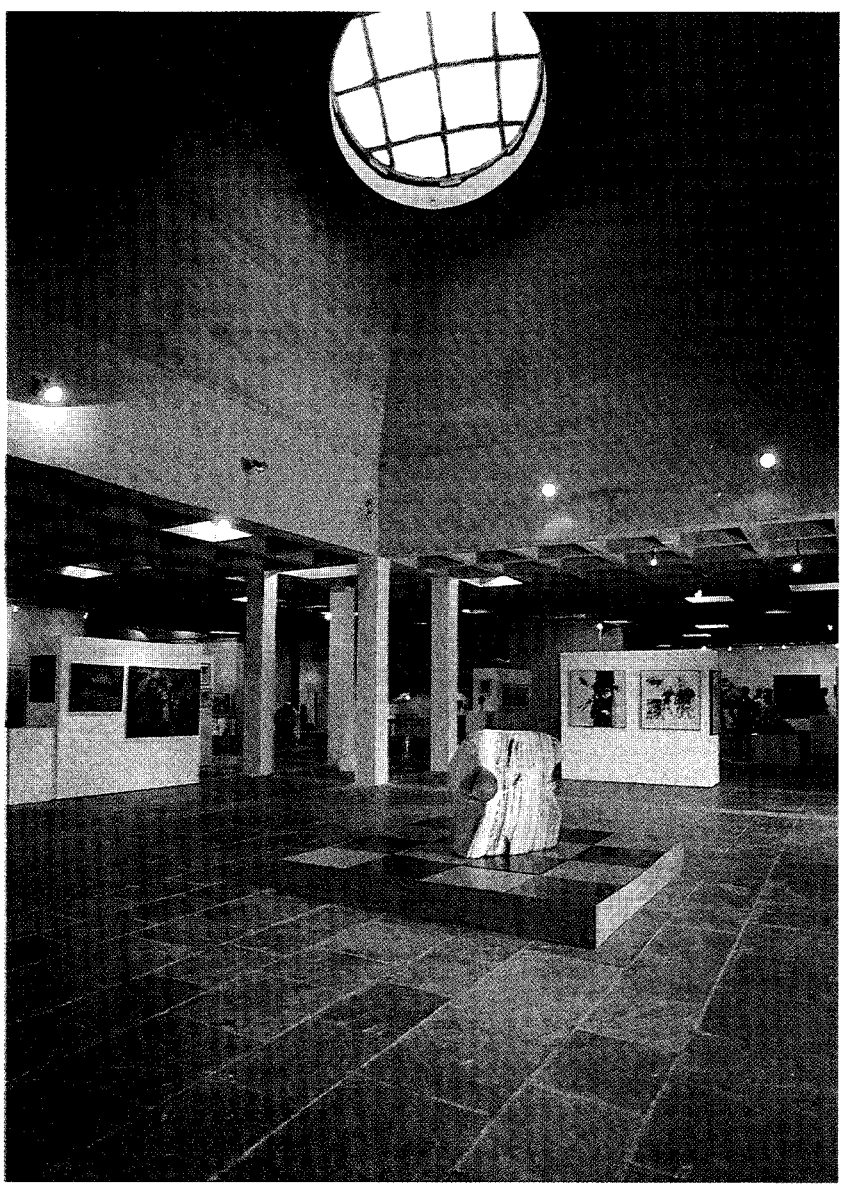
The *Bhairang* with a performance in progress.



Courtyards connect the various activity spaces.

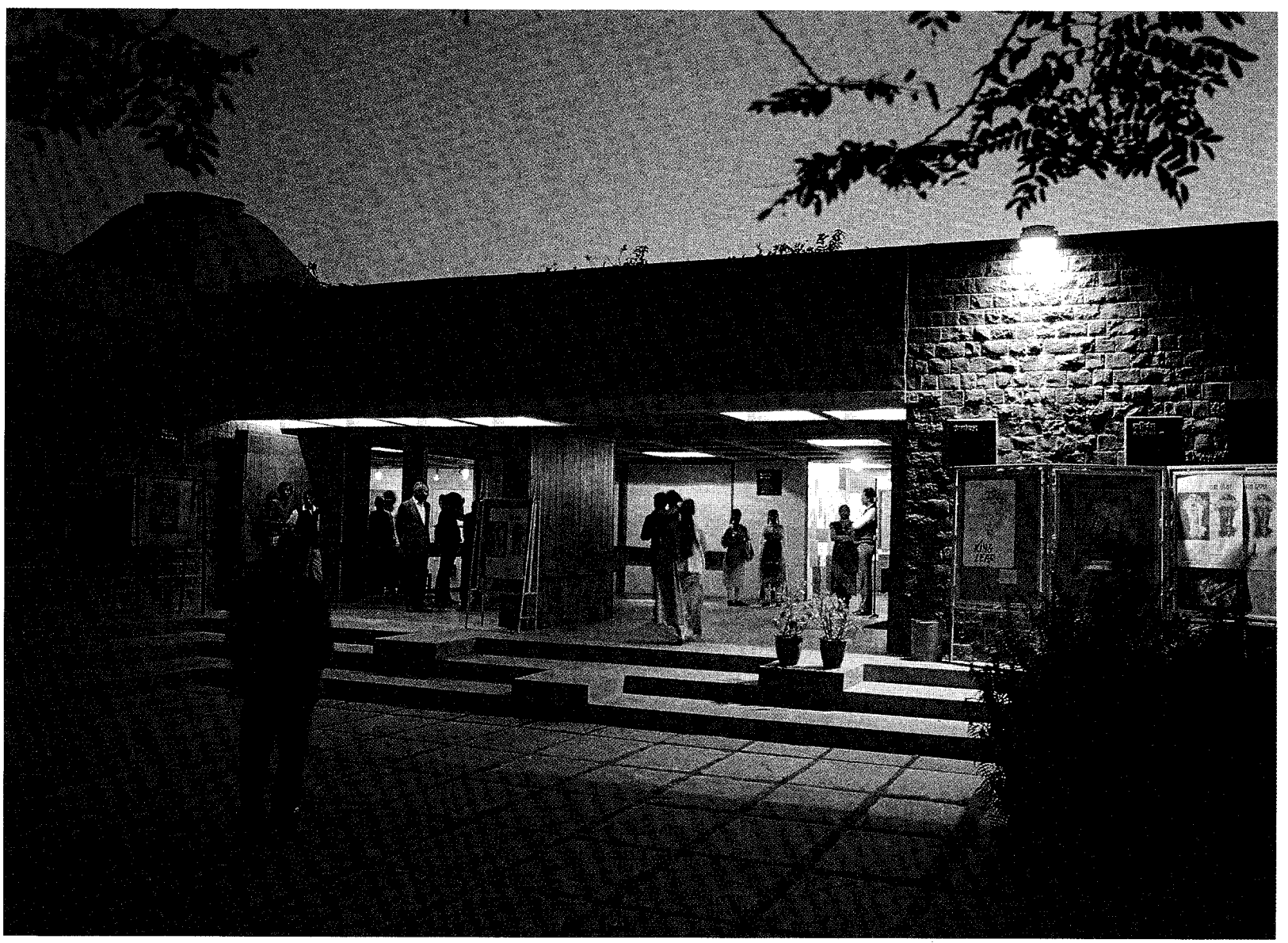


Museum of Tribal Art.



Gallery of Modern Art with its top-light 'cannon'.

Courtyard and gallery entrance.



An exhibition in the evening.

Kala Akademi

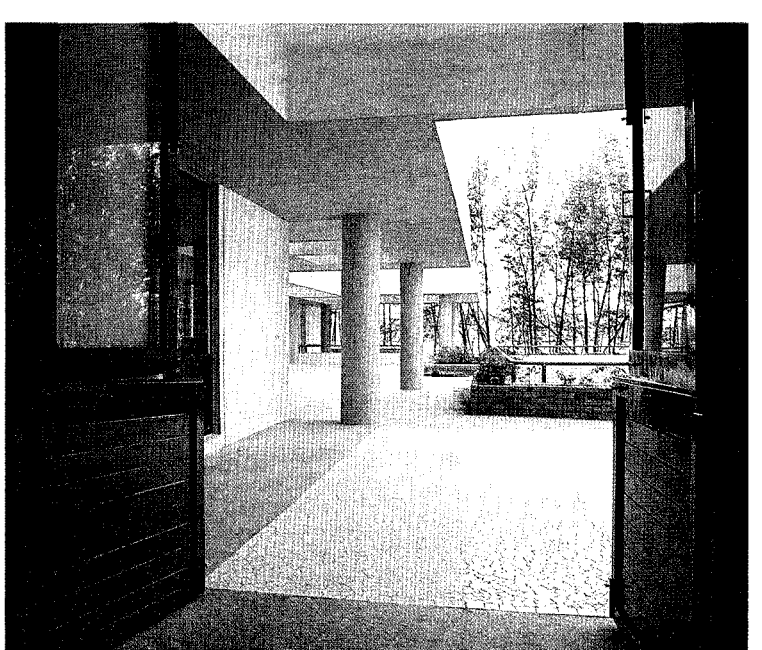
Panaji, Goa
1973–83

On a site along the Mandovi River in Panaji, the capital of Goa, this centre for the performing arts provides a number of facilities including a 1000 seat auditorium, a 2000 seat open-air amphitheatre, and a special "black box" for experimental productions. There is also accommodation for visiting troupes and facilities for teaching dance as well as for Indian and Western classical music. The project started in 1973 but was only completed some ten years later.

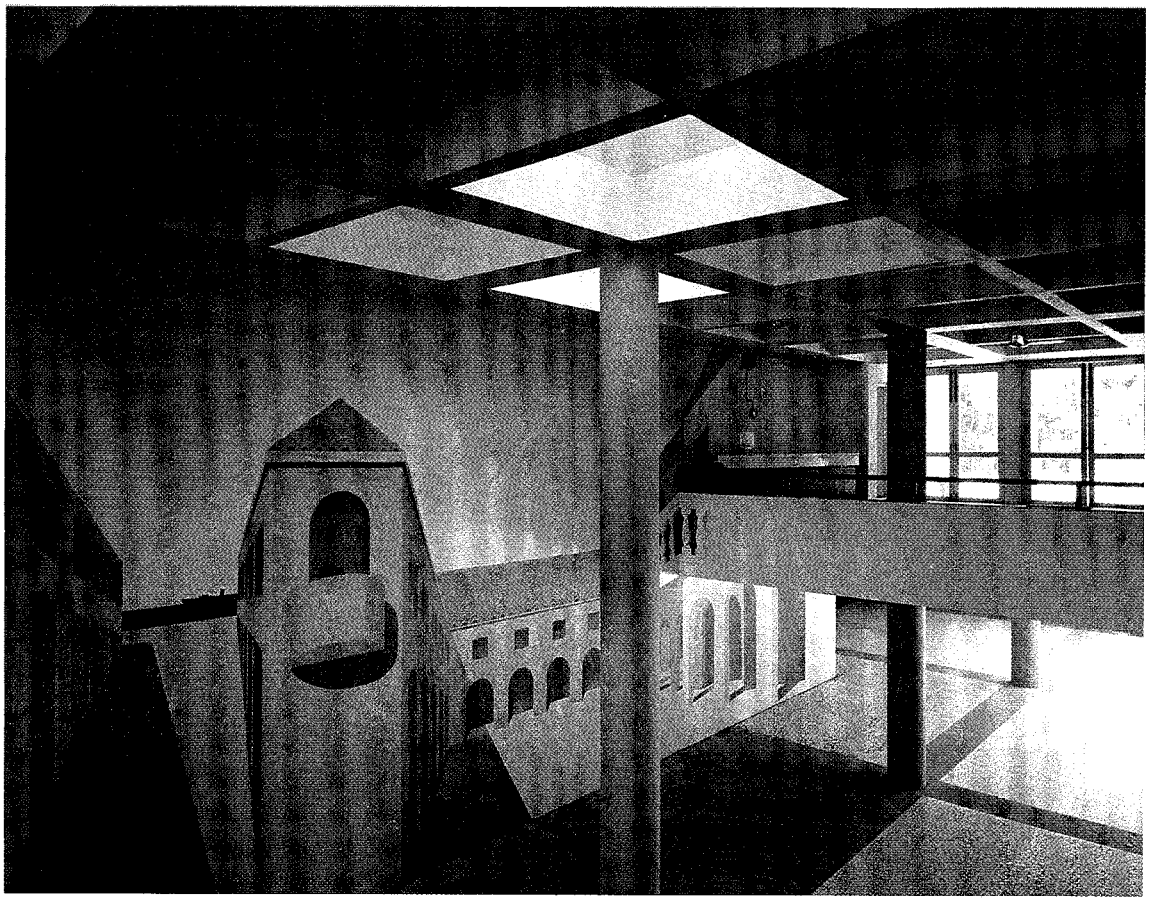
The built form is kept low, ranging from one to three floors. The main feature of the building is the large pergola above the entrance which acts as an extension to the foyer of the main auditorium and amphitheatre. This entrance space acts as a funnel to the building from the Campal (one of the major tree-lined avenues of the city) towards the casuarina trees along the water.

The auditorium allows for a variety of acoustical conditions ranging from speech and plays to sitar recitals and orchestral arrangements. The transparent false ceiling allows acoustic changes to be made by manipulating absorbent materials placed within inner compartments hidden from view above this ceiling. The walls of the auditorium are painted illusions of an old Goan theatre, complete with boxes and typical local inhabitants, by the renowned Goan artist Mario Miranda. Behind the figures in the boxes real curtains may be pulled to reduce reverberation time in the space. At the start of a show the house lights dim gradually with the illuminated painted figures in the balconies fading last of all. At the interval the process is reversed, and at the end of a performance, spotlights illuminate the painted ceiling inside the compartment to reveal a jungle scene of Goa — a reminder of illusion and reality. This concern with illusion and metaphor continues in much of the architect's later works.

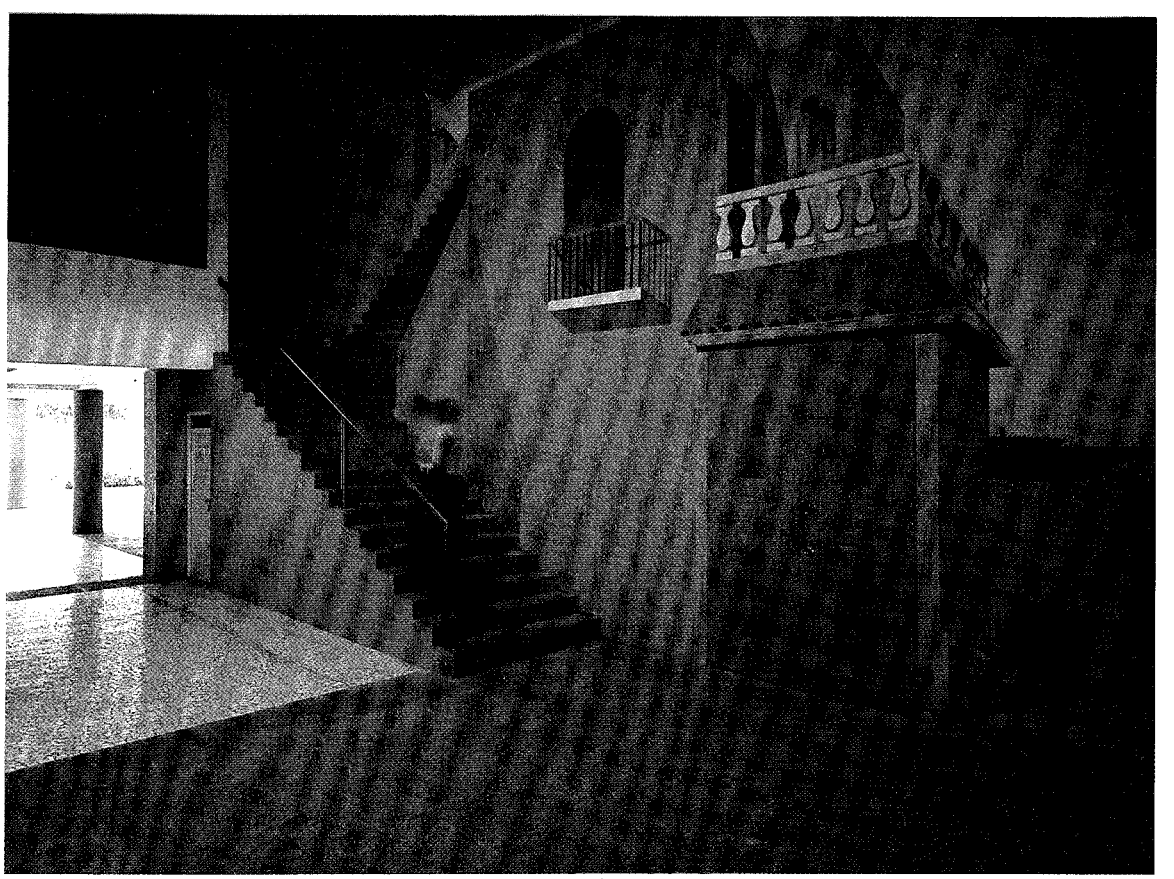
View from the river to the Akademi with its small open-air stage in the foreground.
Preceding page: Entrance with its pergola of bamboo beams covering the extended foyer.



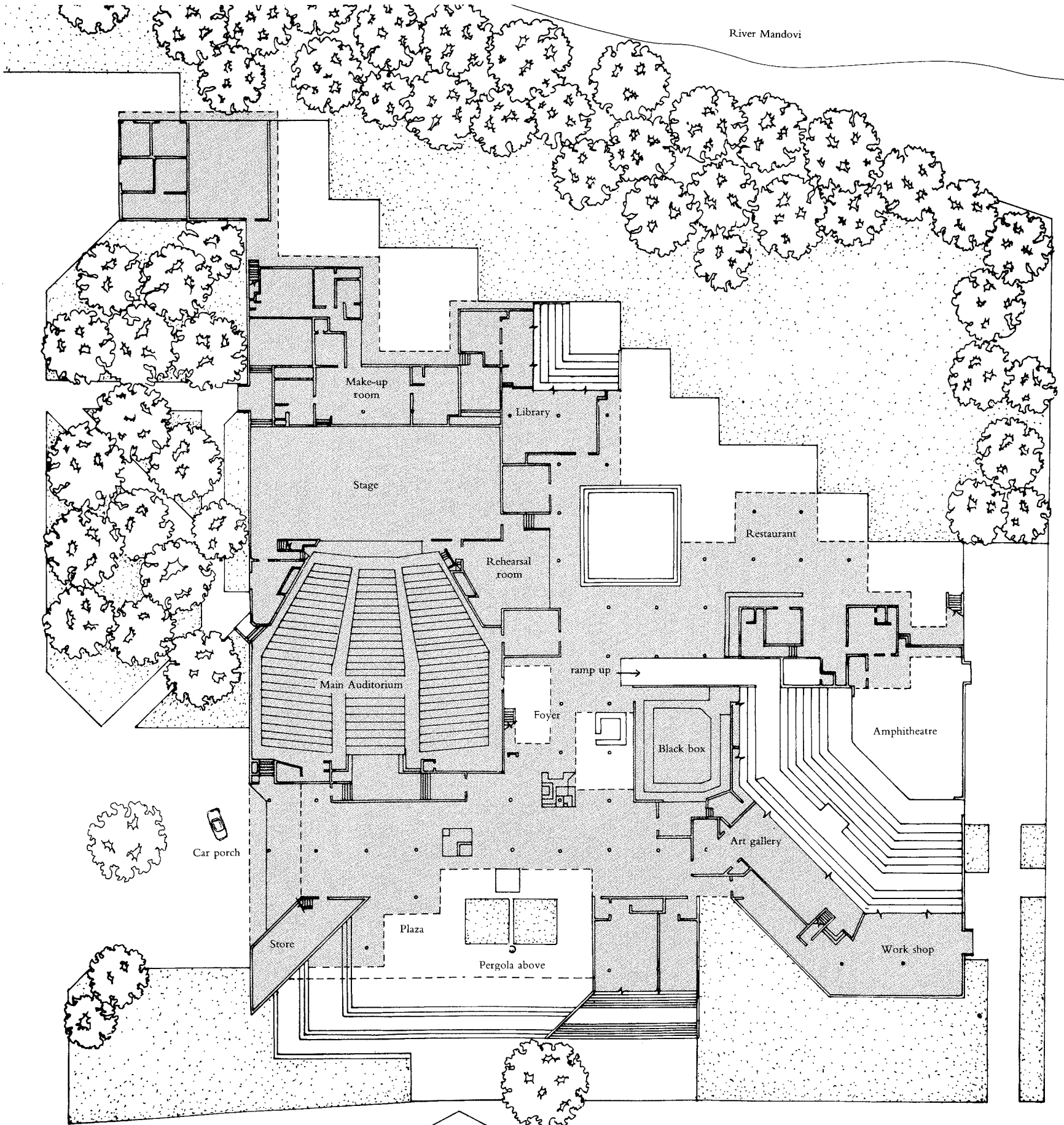
The upper level looking towards the river.



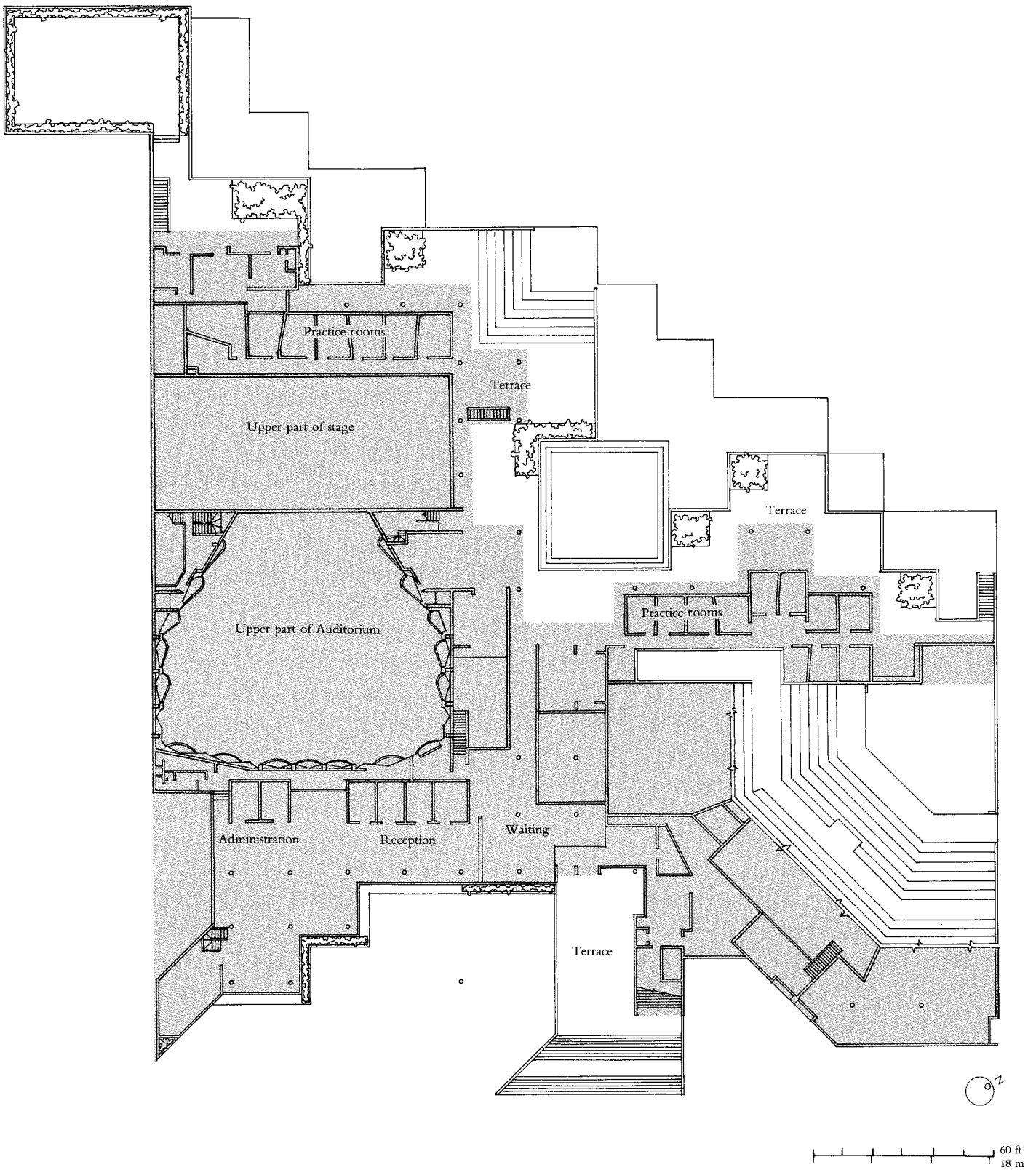
Real and illusionary elements.



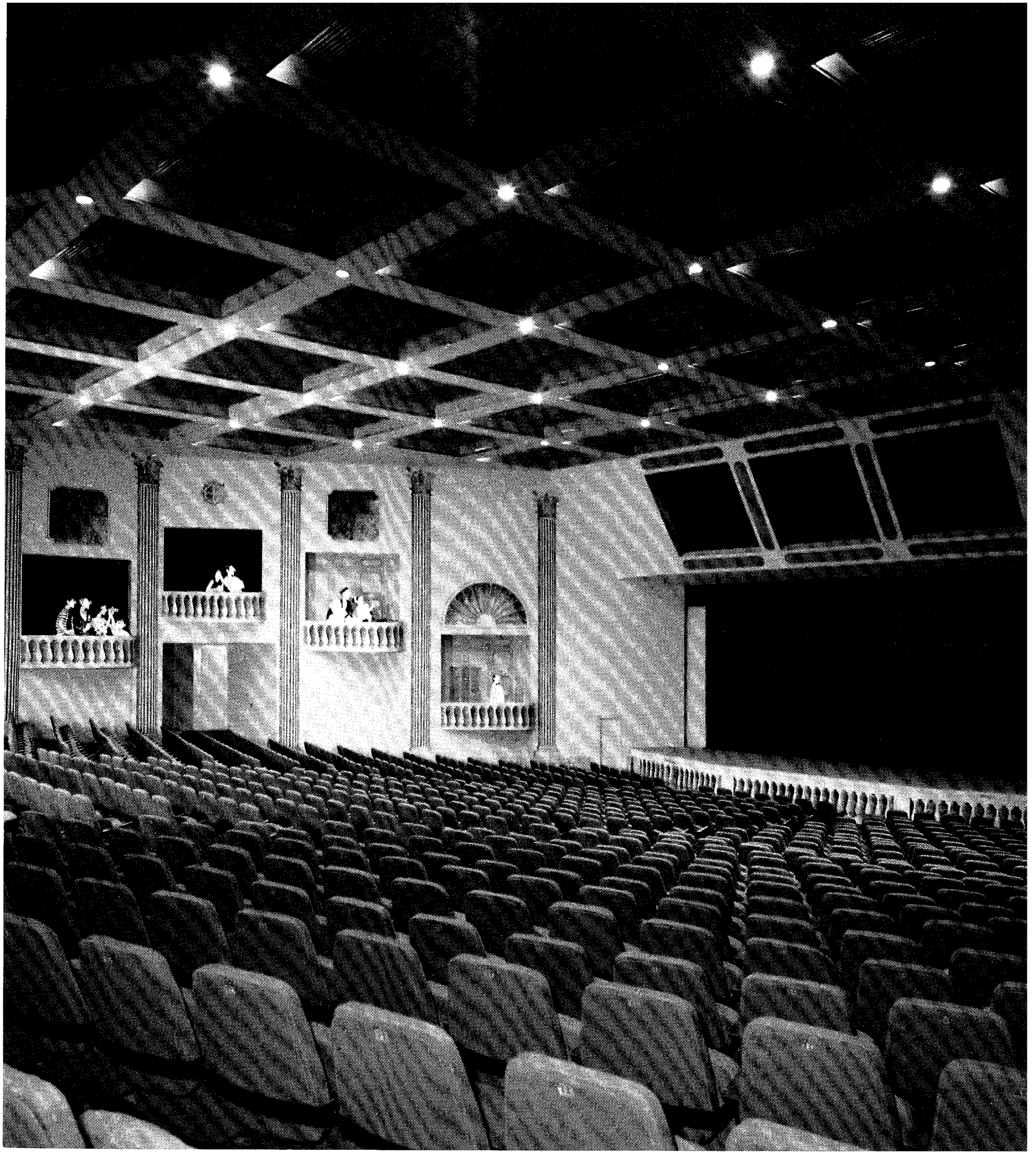
Entrance foyer — the illusion commences.

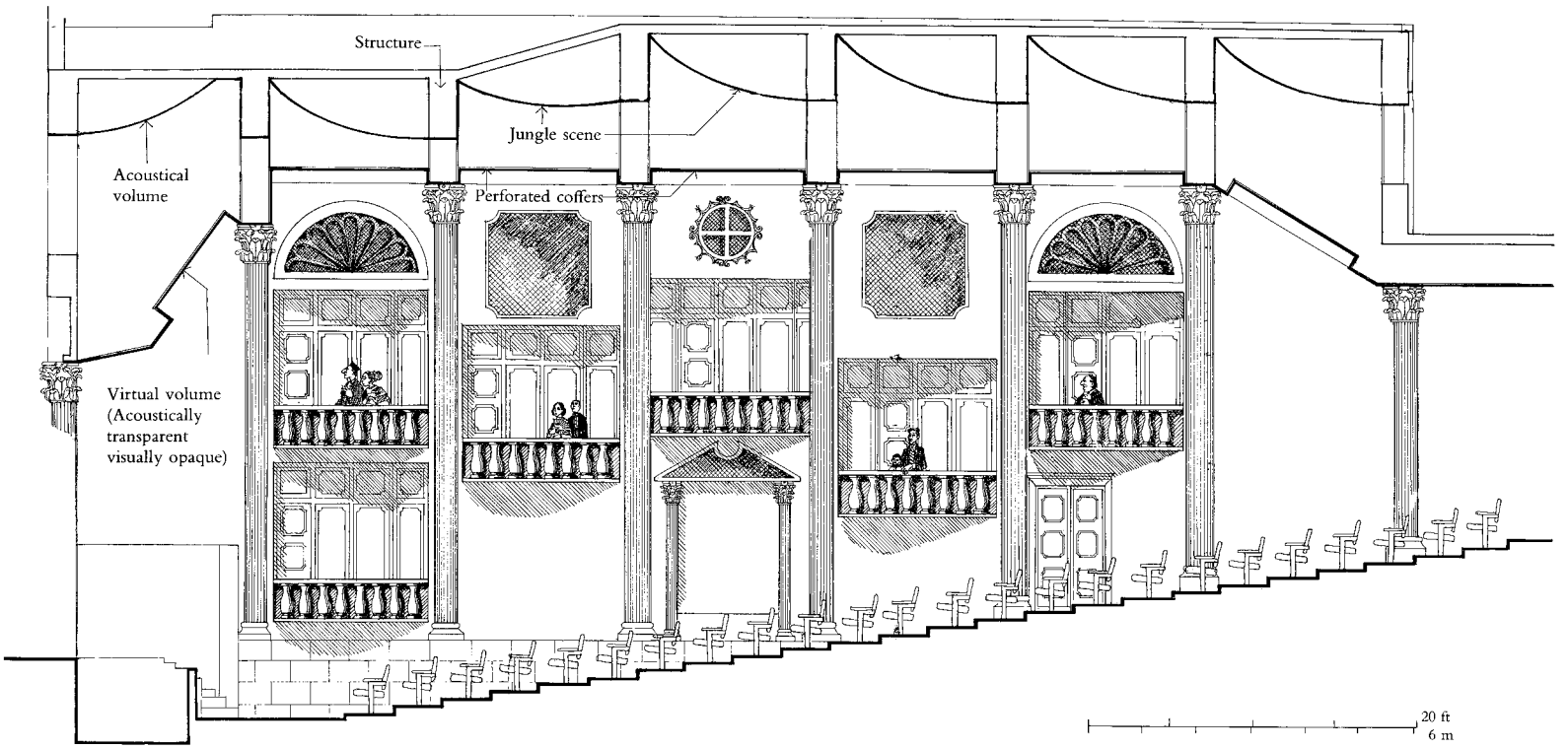


Main level plan.

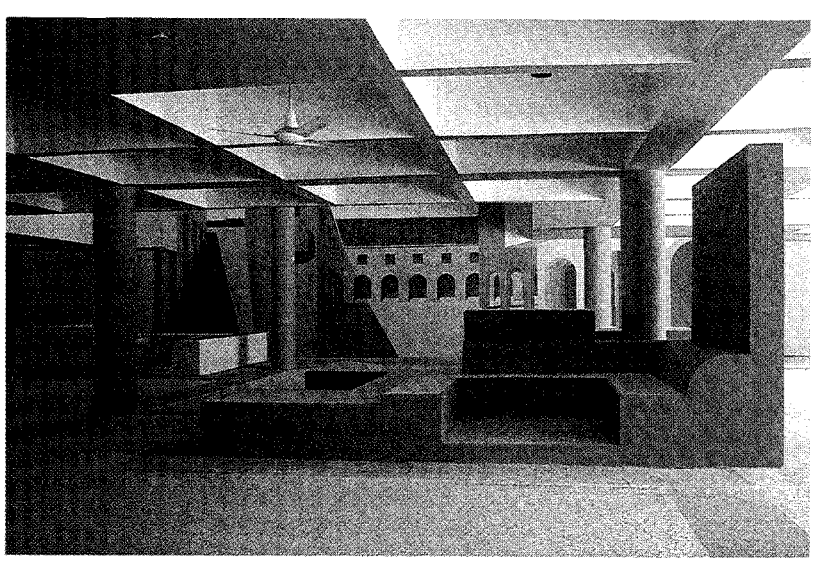


Upper level plan.





Sectional elevation of the auditorium.



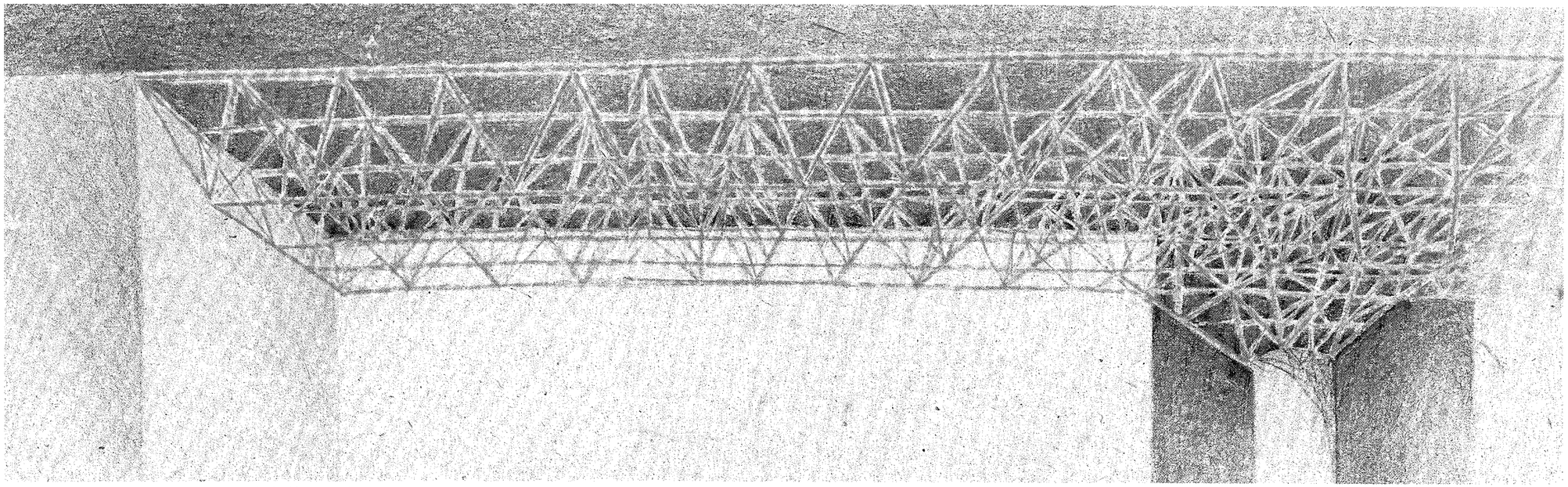
Real and illusionary space in the auditorium foyer.
Left: The 1000 seat auditorium.

LIC Centre
Delhi
1975–86

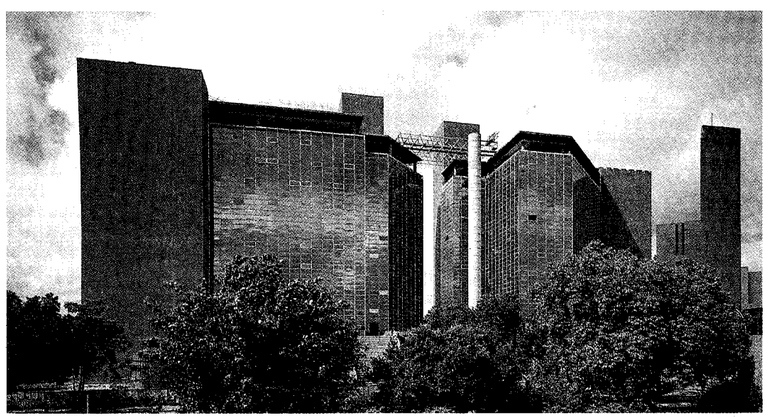
The Life Insurance Corporation (LIC) complex is situated on the outer road of Connaught Circle as a pivotal site between two major arteries: Parliament Street and Janpath. In this location it acts as a transition between the circle's colonnades and the new generation of high-rise towers that are springing up in the areas to the south of it. The building acts both as proscenium and backdrop: a huge twelve storey proscenium beyond which the towers behind can be glimpsed and the faceted glass surfaces which become a stage backdrop reflecting images of the buildings and trees of Connaught Place.

The two lower levels of the complex consist of shopping decks and restaurants. The upper office levels form separate wings focussed on a central open space of gardens and patios. The whole is connected by a great pergola 98 metres long, supported at either end by masonry piers and in the middle by a single column, recalling the colannades of Connaught's shopping centre. An elevated walkway through the building will carry people from the proposed bus terminal just behind the site directly to Connaught Place. The pedestrians will transverse the building as a great *darwaza* (gateway) defined by the portico-form.

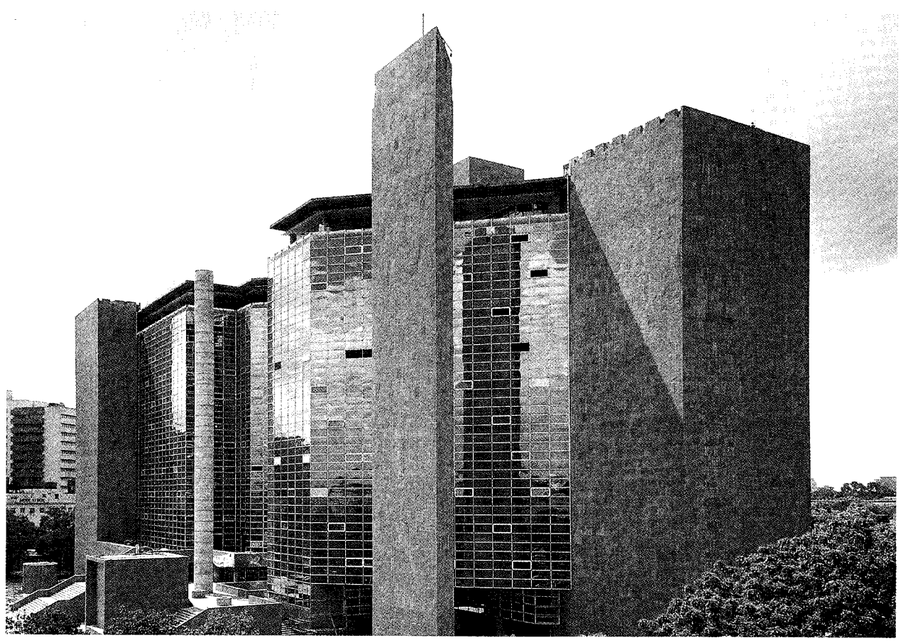
The complex was commissioned in 1975 and, like many projects in India, has taken a long time to construct, with completion in 1986.



The space frame acts as a *darwaza* (gateway) to the building complex.

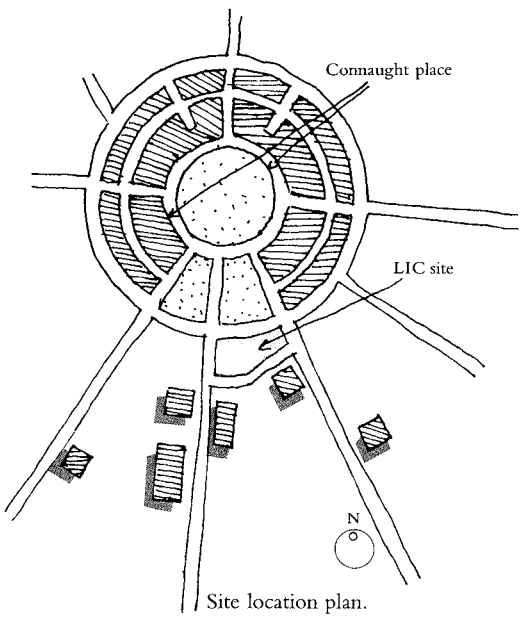


View from Connaught Circus.

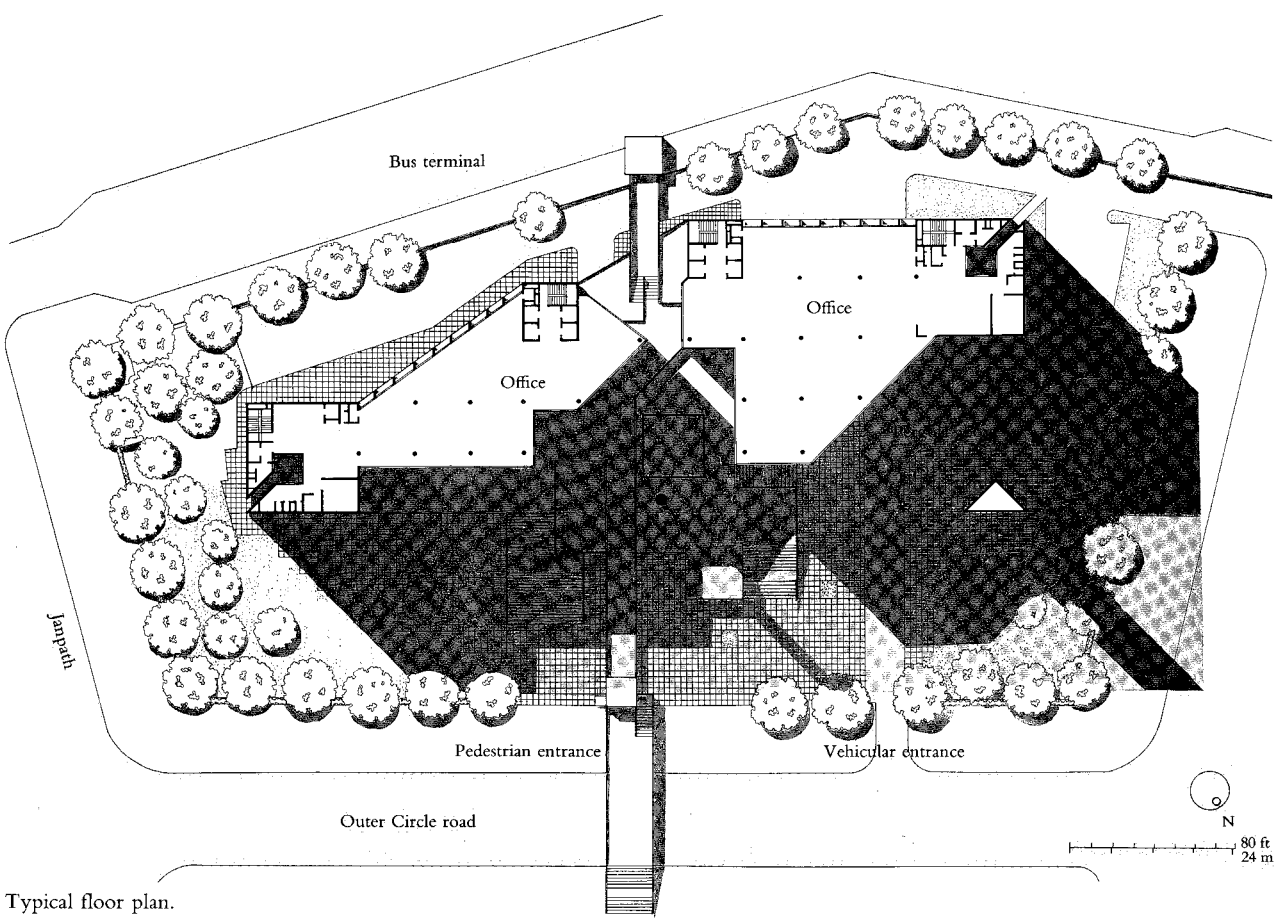


General view.

Connaught Place with the LIC Centre in the background.

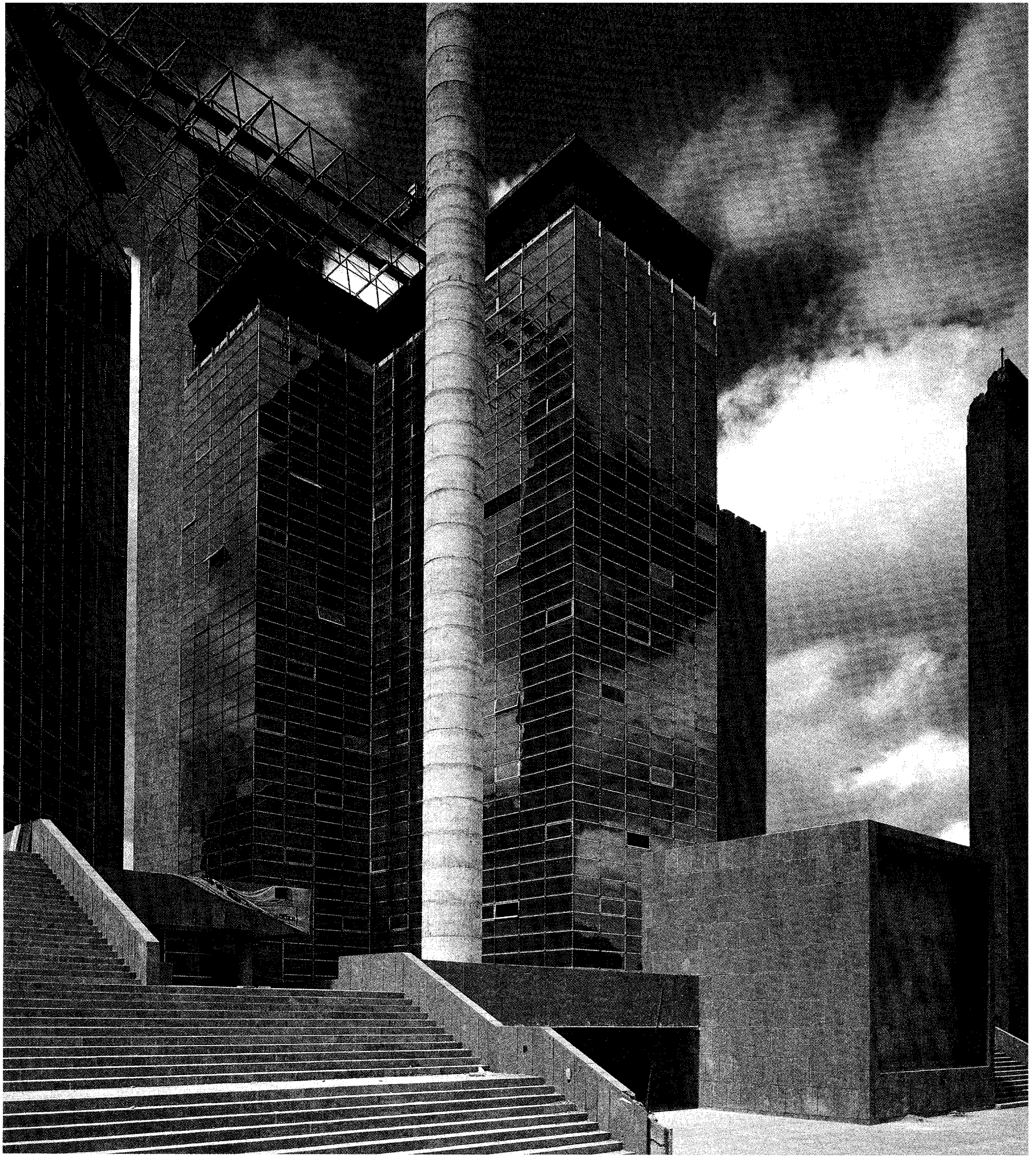


Site location plan.



Typical floor plan.

Right: Entrance.



Crafts Museum
Delhi
1975–

The great Hindu and Buddhist temples of the past — such as those in Bali (Besaki), Java (Borobudur), and Southern India (Srirangam) — were structured around an open-to-sky ceremonial path. Correa's Crafts Museum is organised around a central pathway, revealing a sequence of spaces along the pedestrian spine.

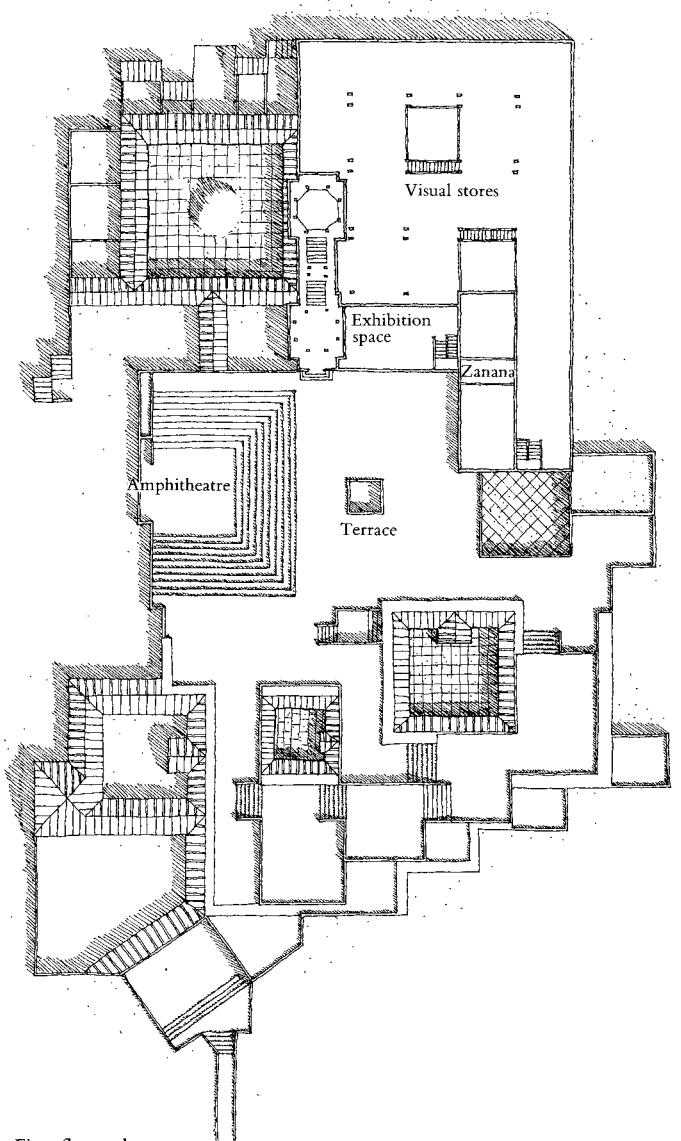
Exhibits, such as in the Village Court and the Temple Court, lie along the path in the connected courtyards. Off these courts are particular exhibits such as village crafts, etc. The exhibits may be viewed individually or seen as an unfolding of "events" along the way. The sequence ends with the exit via the roof garden, which forms an amphitheatre for folk dances, as well as an open-air display of large terracotta horses and other handicrafts.

In this "non-building", as Correa calls it, he further explores the idea of a puzzle-box and the use of platforms at varying levels to articulate space. This scaling-down of functions is also something that he employed in his pavilion project for Expo '70 at Osaka. The stepping down of the platforms and the actual use of steps to define both functions and edges of spaces echo the old bathing *ghats* of Varnasi or the incomparable Sarkhej in Ahmedabad.

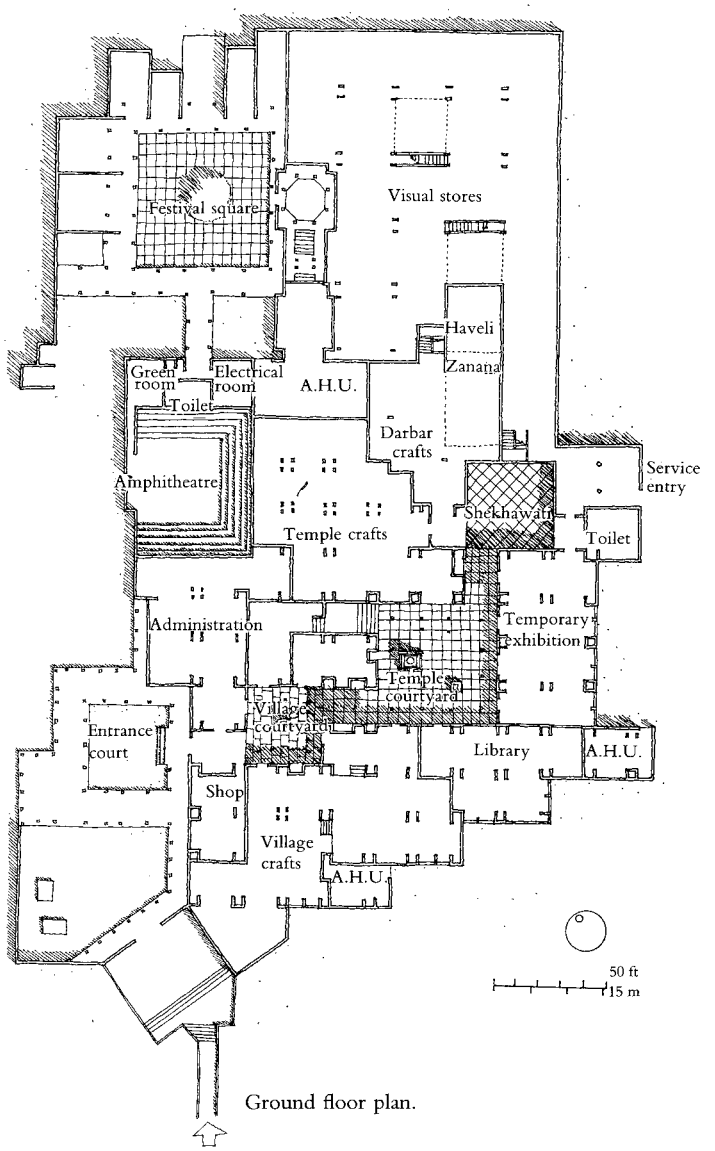
The first phase of the Crafts Museum started in 1975 was completed in 1977. The second and final phase is expected to be completed in 1987, where ancient buildings of cultural importance have been inset into the new built form. For example, an old *haveli* (house) from Gujarat and a stone temple from Tamil Nadu provide actual environment in the museum to make an architecture of *collage*, following a tradition as varied and pluralistic as India herself.

Main entrance.

View toward the amphitheatre.

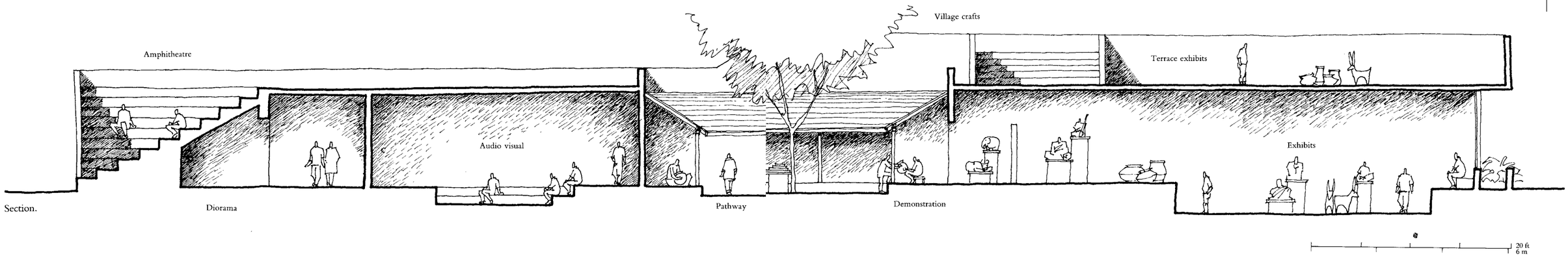


First floor plan.

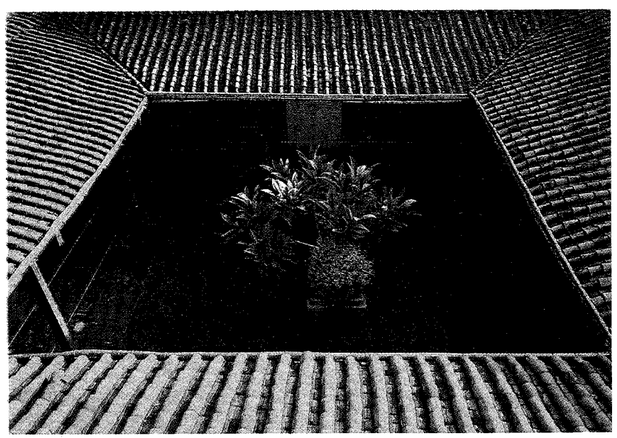


Ground floor plan.

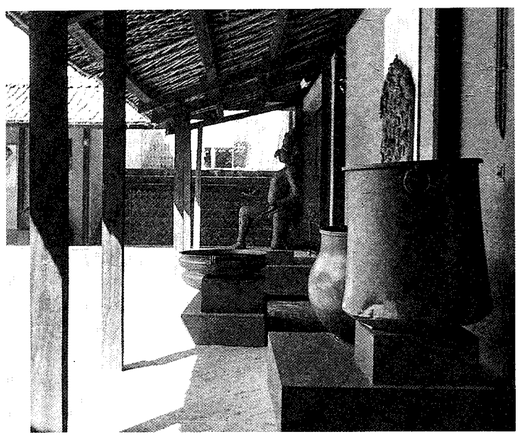
Crafts Museum



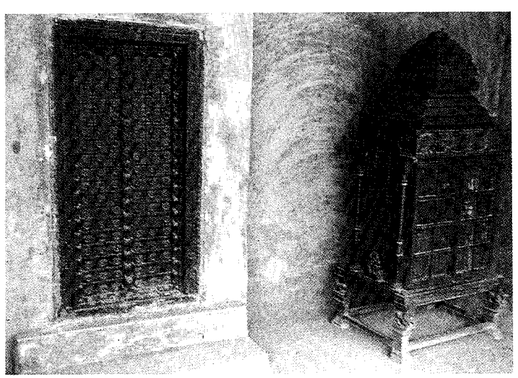
Section.



Village court.

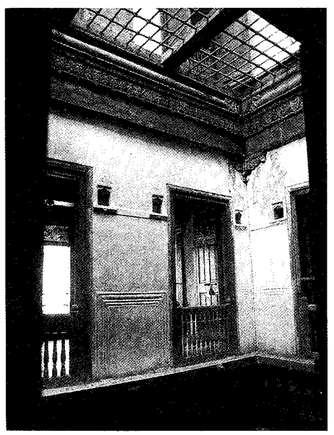


Display along the courtyard sides.

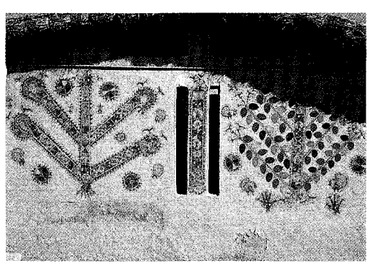


Entrance to village exhibit.

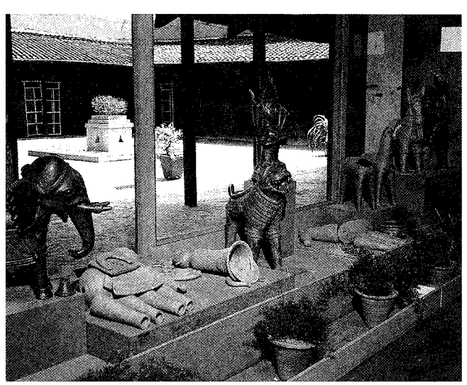
Exterior of a *haveli* from Gujarat.



Haveli interior.



Folk art display.



Display of terracotta figures.

Vidhan Bhavan

Bhopal
1980–

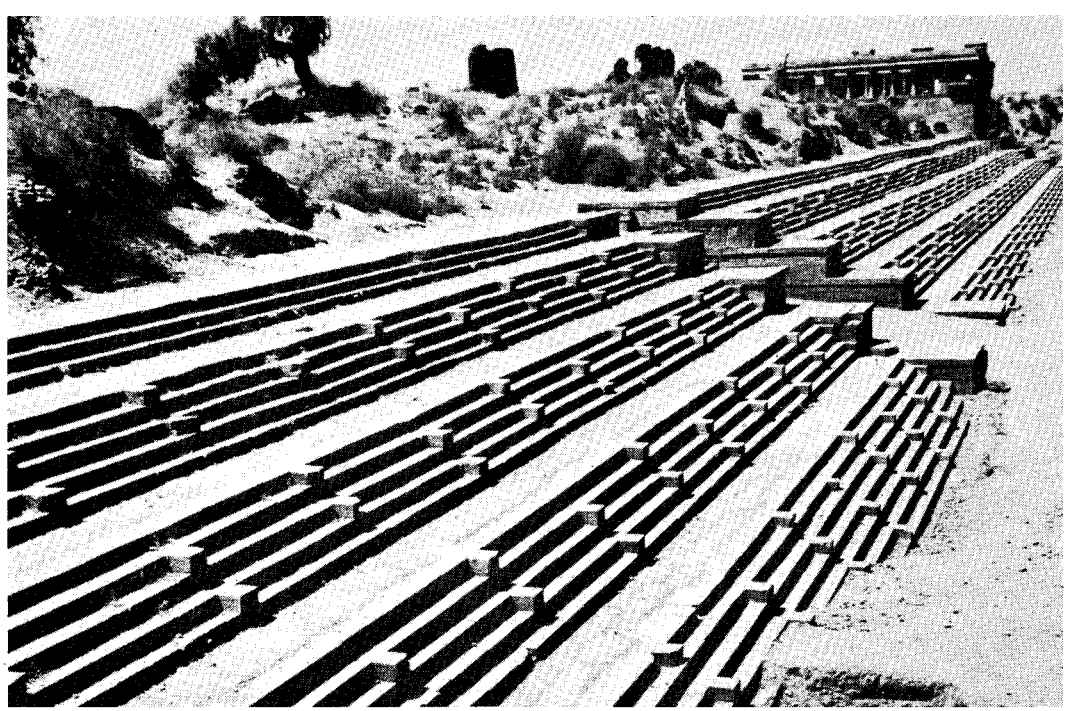
The new State Assembly, in the capital city of Bhopal, for the Government of Madhya Pradesh was commissioned in 1980 but did not begin construction until 1983. Many factors determined its form: its site on the crest of a hill; the historic Muslim monuments nearby; and the famous Stupa of the Buddha at Sanchi, some fifty kilometres from the city. But perhaps the greatest determinant of form was the *mandala* — the cosmic organisation of functions, sequences and spaces within the ancient Hindu conception of the Universe.

The plan consists of a series of spaces within spaces, divided into a pattern of nine compartments (common in *mandalas*) which focus around a centre which represents nothingness. On two perpendicular axis, emanating from a central courtyard, are the administrative offices. The remaining four corners are occupied by the specialised functions: the Vidhan Parishad (Upper House), the Vidhan Sabha (Lower House), the Combined Hall, and the Library.

The administrative offices constitute the bulk of the floor area and form a decisive part of the architectural experience. The offices are placed between open spaces in the manner of buildings built in India during the nineteenth century which provided circulation along verandahs from which there is a view of surrounding gardens. Hence the path to the offices and their waiting areas becomes an important and pleasant experience.

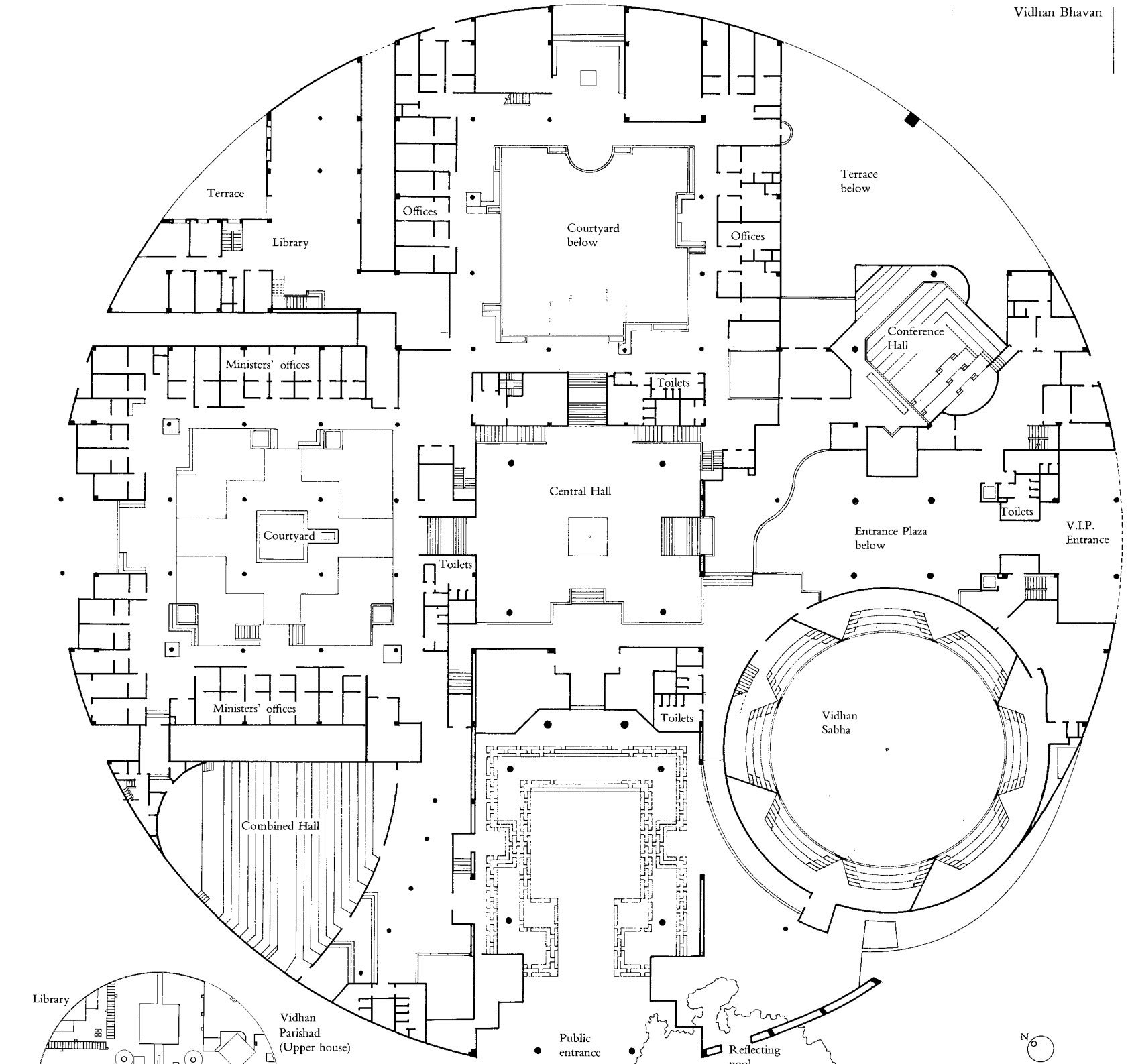
In this Vidhan Bhavan, the movement pattern within the building have been carefully studied. For the bureaucrat and the politician the circulation is always along the edge of the courtyards. For security reasons the public is separated from Assembly Members and other VIPs. Visitors enter through the main Public Entrance court to the west, and after passing through a checkpoint, climb ramps to reach viewing galleries overlooking the three main Halls. On the way to the galleries and offices people walk along bridges and ramps winding around the *subbhas* like the ritual circumambulatory paths around the Sanchi Stupa. This movement pattern — the path within the puzzle-box — is common to many of the architect's projects and is similar in nature to Louis Kahn's National Assembly, Sher-e-Bangla Nagar, in Dhaka, Bangladesh. The progressions through space allow the complex building to be experienced in all its dimensions.

This building can perhaps be best explained as a series of energies connecting the inside to the outside and the outside to the inside, setting of vibrations between the building's forms and the building's users — a yin-yang relationship. The use of an intellectual construct of space marks a new direction in Correa's work — a more *conceptual* architecture rather than one determined by site, materials, climate and economics alone — and as such it becomes one of his most powerful architectural statements.

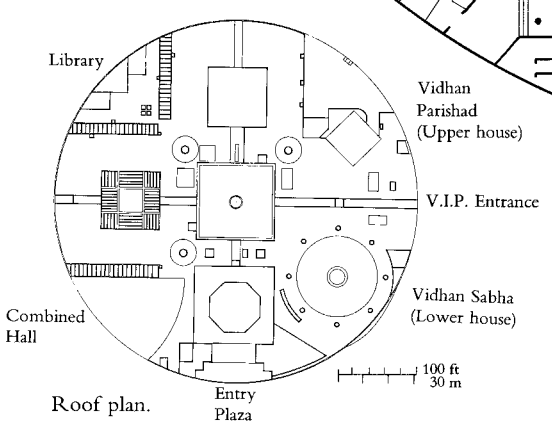


Steps at a bathing *ghat*.

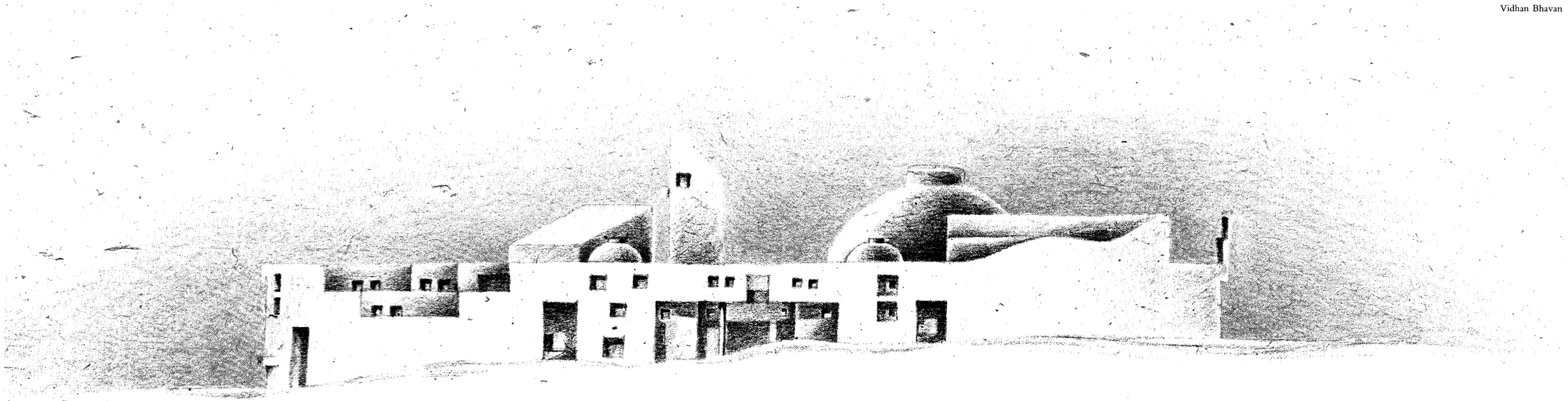
Sanchi Stupa.



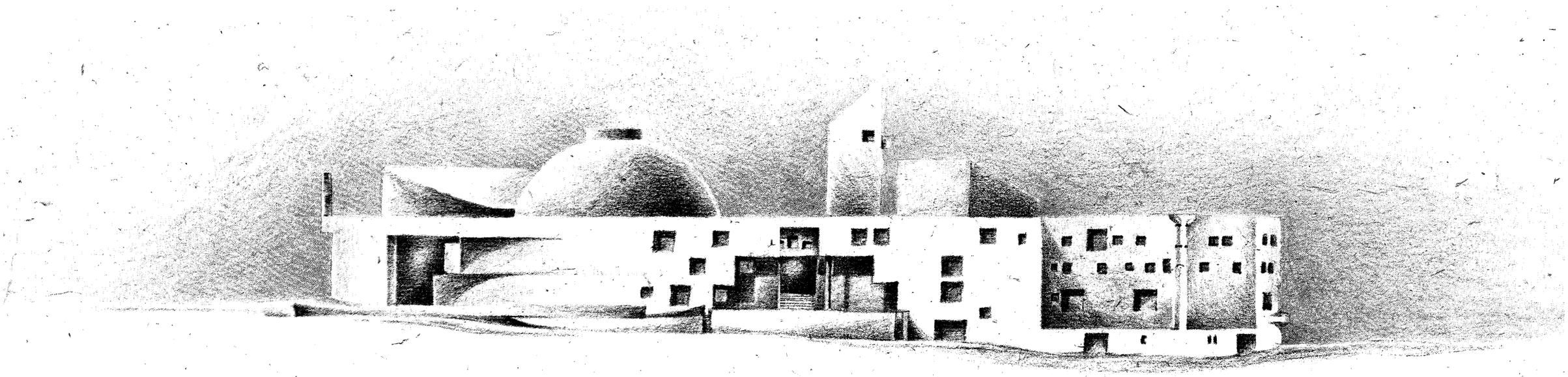
Floor Plan



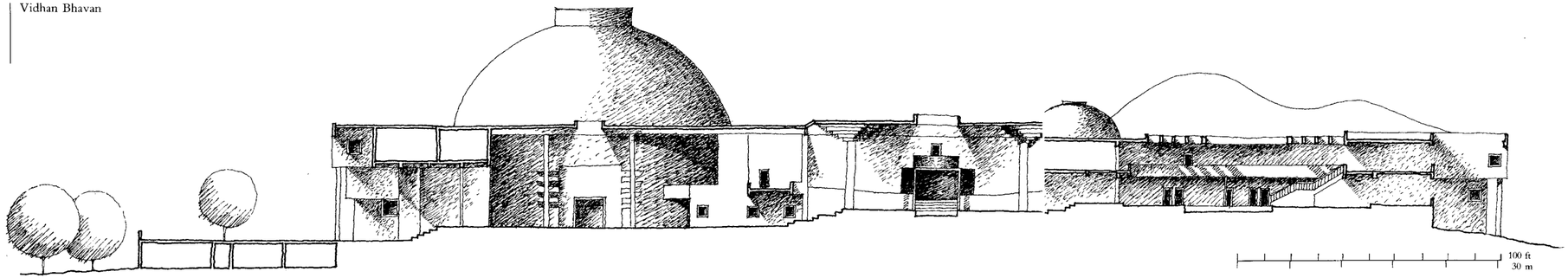
Roof plan.



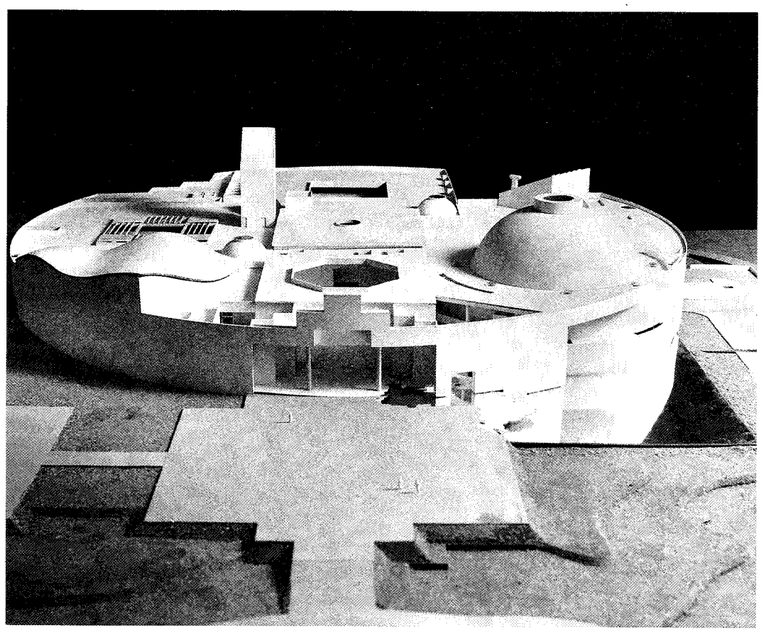
Northwest elevation.



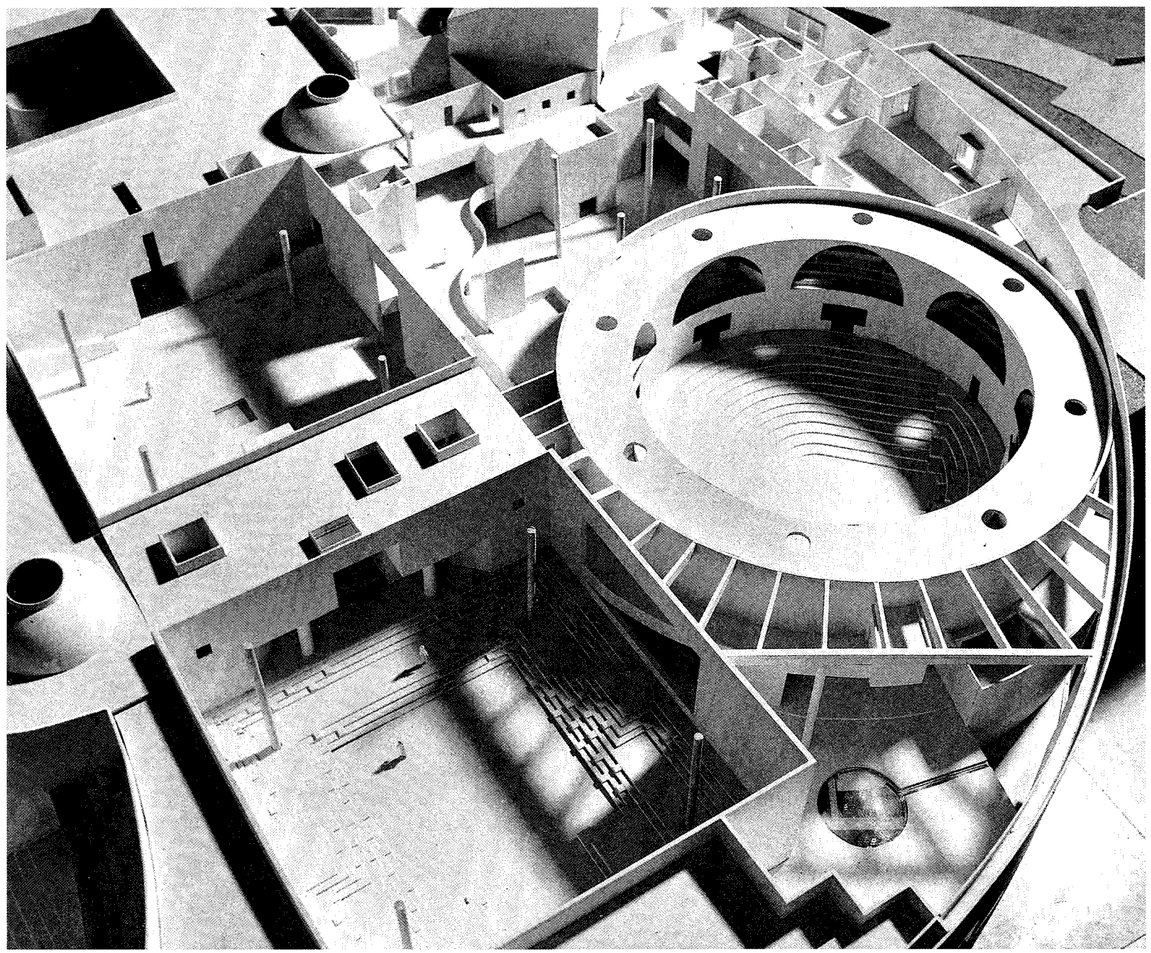
Southeast elevation.



Section.



Model: Public entrance view.



Partial model view of the public entrance, the central court and the Vidhan Sabha.

Archaeology Museum

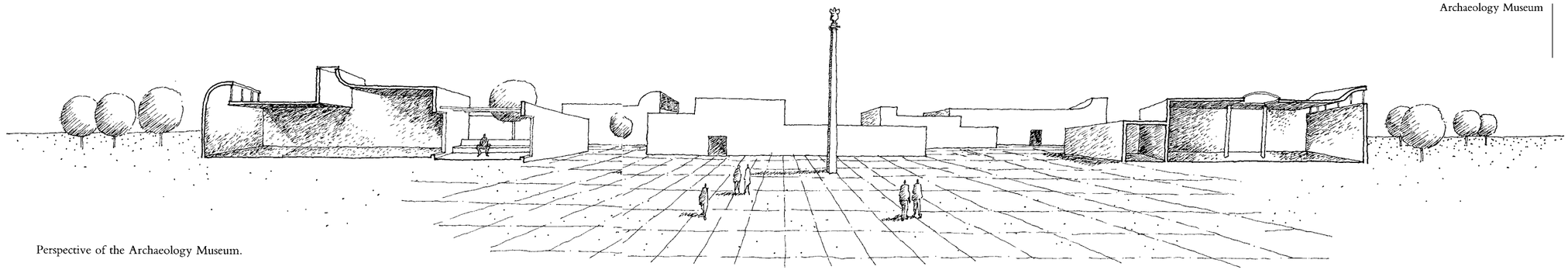
Bhopal
1985–

Correa's use of the courtyard enclosed by a wall *outside* which are the buildings is an innovation he has begun to use in the 1980s. This idea has been employed in the design for the Archaeology Museum where the courtyards are arranged in an hierarchical order with smaller ones opening onto the central court — reminiscent of the HUDCO township. The central open-to-sky court is not symmetrical; adding to the dynamic nature of the buildings which surround the wall and recalling the casual village-like configuration of the Gandhi Smarak Sangrahalaya.

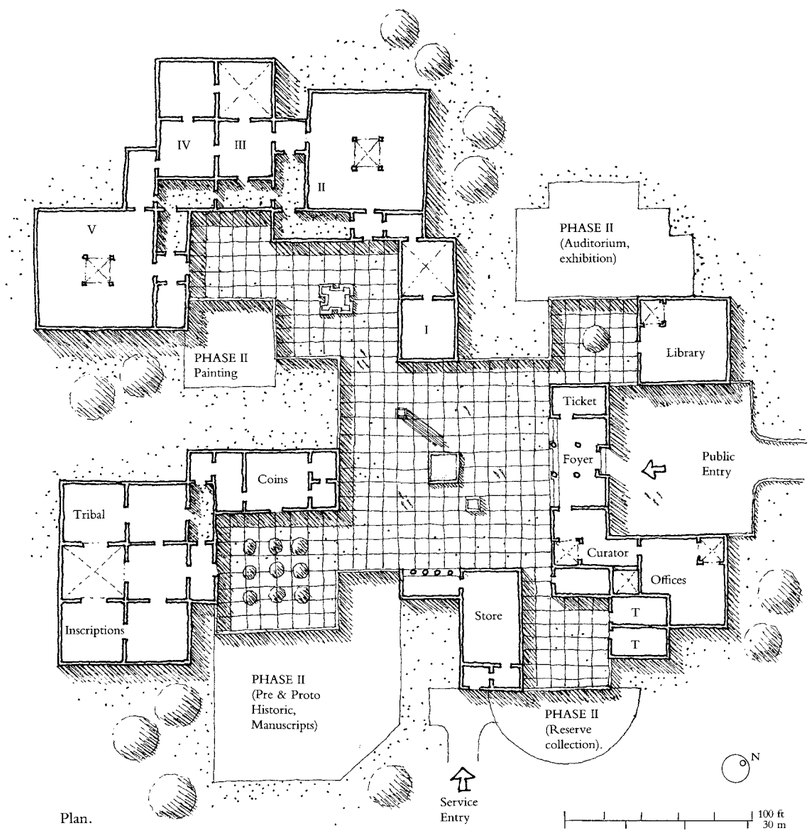
Outside the wall the rooms are strung along in a variety of spaces which can be built incrementally. These spaces, mainly for exhibits, use natural light in several ways — either to bathe a wall or room with light or to concentrate it on an object. The architect has created basically two environmental systems — exterior open areas and internal exhibition spaces — between which are zones of circulation.

An advantage of using walls in segments to define space is that each part can be developed sequentially. Once the enclosing walls — the skeleton — are built, the international structures can be added or modified without changing or destroying the basic concept.

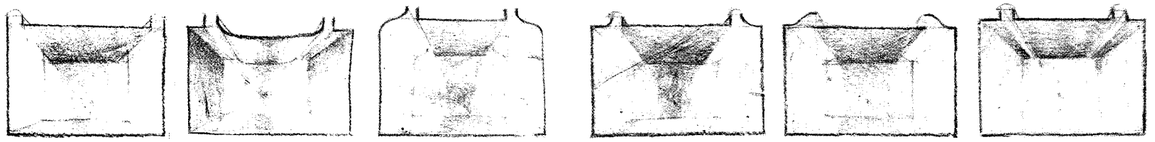
This work, which illustrates one of the new directions in the architect's architecture, is currently in the design stage.



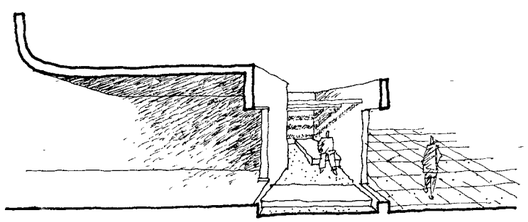
Perspective of the Archaeology Museum.



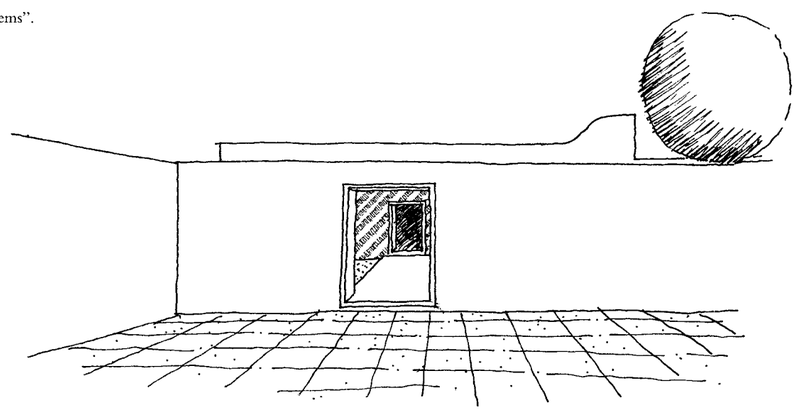
Plan.



Studies of lighting of interior spaces.



Sectional sketch showing "zone between the two systems".



Elevational sketch showing "zone between the two systems".

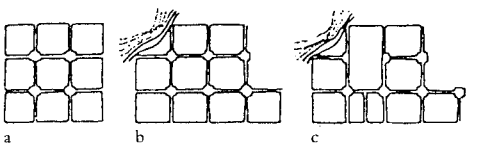
Jawahar Kala Kendra

Jaipur
1986–

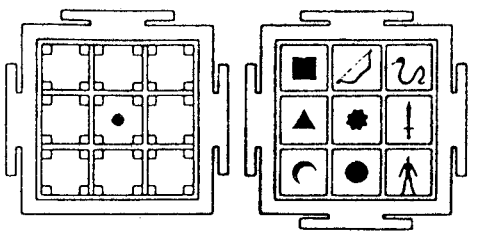
This cultural centre for the city of Jaipur, is dedicated to the memory of India's great leader Jawaharlal Nehru. Ideas for the building, sited in an open field near the university in a new part of the city, formed in Correa's mind; but it was not until 1986 that the concept for the building was finalised.

The centre is an analogue of the original city plan of Jaipur drawn up by the Maharaja, a scholar, mathematician and astronomer, Jai Singh the Second, in the mid-17th century. His city plan, guided by the Shipla Shastras, was based on the ancient Vedic *mandala* of nine squares or houses which represent the nine planets (including two imaginary ones Ketu and Rahu). Due to the presence of a hill one of the squares was transposed to the east and two of the squares were amalgamated to house the palace.

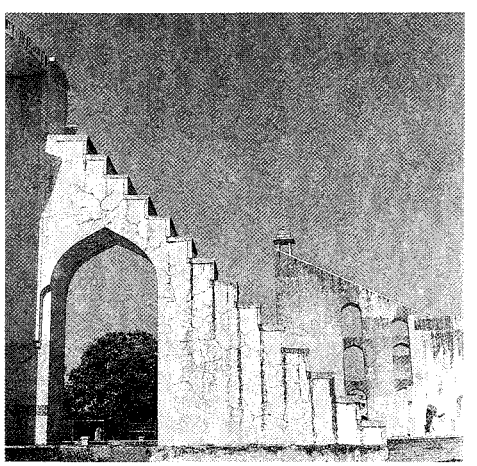
Correa's plan for the Kendra invokes directly the original *navagraha* or nine house *mandala*. One of the squares is pivoted to recall the original city plan and also to create an entrance. Each of the squares is defined by 8-metre high walls. The building programme has been "disaggregated" into eight separate groupings corresponding to the myths represented by that particular planet: for instance, the library is located in the square of the planet Mercury which traditionally represents knowledge, and the theatres are in the house of Venus, representing the arts. The astrological symbol of each planet is directly expressed in a cut-out opening along its external wall. The central square, as specified in the Vedic Shastras, is a void: representing the Nothing which is Everything. The flooring pattern in this square is a diagram of the lotus representing the sun.



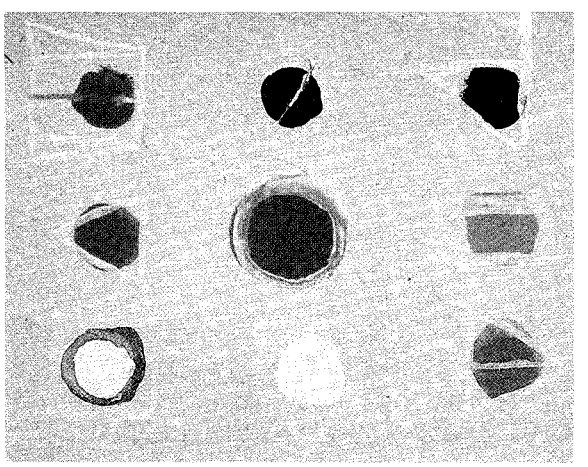
The plan of Jaipur city based on the nine square Yantra in which one square is displaced and two central squares combined.



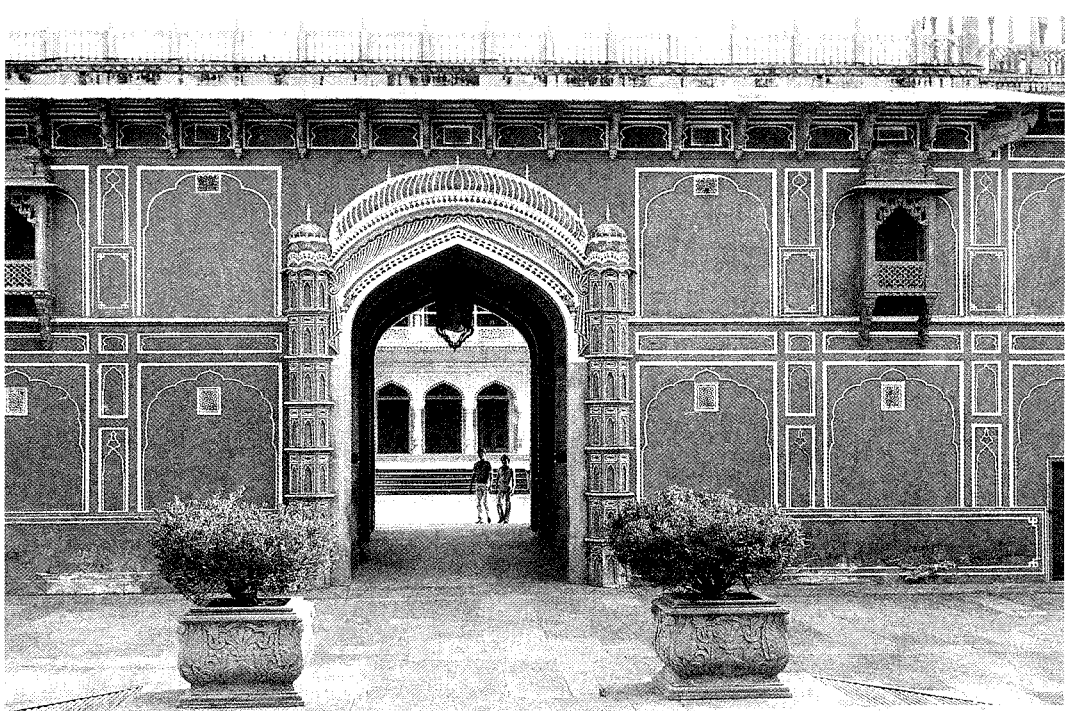
Ground plan of the Nāt-Mandir in Konarak (left), corresponding to the divisions of the Yantra of the Nine Planets or *Navagraha* (right). The symbols of the yantra are: square = Venus; bow = Mercury; snake = ketu; triangle = Mars; lotus = the sun, at the centre; sword = Rahu; crescent = the moon; circle = Jupiter; man = Saturn. Based on the Mandala Sarvasva.



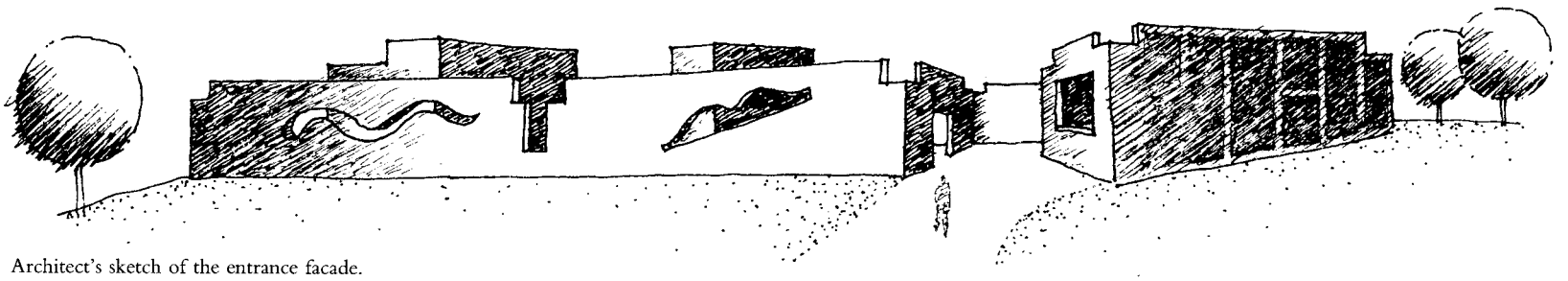
Jantar Mantar or observatory at Jaipur.



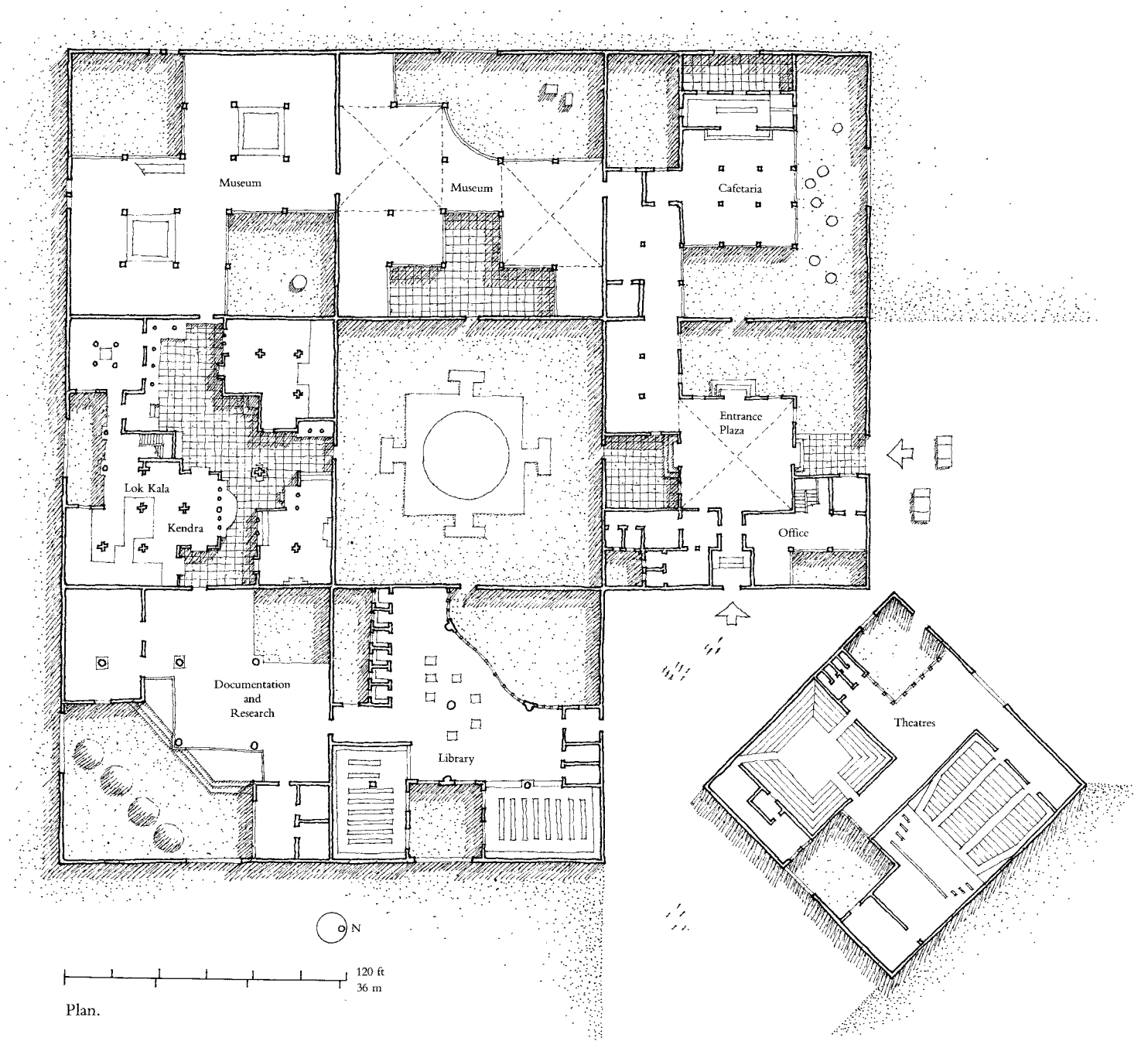
Beautiful old colour drawing.



City Palace, Jaipur.



Architect's sketch of the entrance facade.



Plan.

Postscript

Correa's most recent projects, both those dealing with neighbourhood planning (Belapur and HUDCO housing), and design, especially in his public-use buildings (Vidhan Bhavan, Archaeology Museum and Jawahar Kala Kendra), illustrate what appear to be new directions in his work.

In planning for neighbourhoods his ideas on the importance of the individual as part of a community manifested in physical terms is explored through the devices of individual plots arranged in clusters around a hierarchy of open spaces. The success of this approach as a solution to lower and middle-income housing remains to be seen.

In terms of design there seem to be two major concerns. The first deals with a cosmological approach to the ordering of space through his use of the *mandala* as a system of organisation. To date this has entered his architecture in single buildings, but not yet in housing or planning, as it was sometimes used in the ancient past in India.

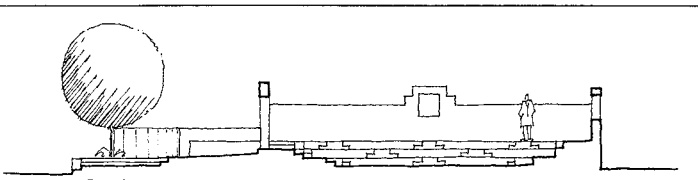
The second deals with the idea of enclosure by a wall. The vertical surface (as opposed to the platform-maze of earlier works) as the element of defining space in a modular manner is postulated as an answer to building in a country where projects are only partially built or built in stages over time. Perhaps the precursors to this are the Crafts Museum (Phase I, 1975) and the peripheral enclosure of the site in the ACC Township (commissioned in 1984). Both these find their continuation in the Jawahar Kala Kendra in Jaipur (1986) which uses the nine-square orgaisation of the *mandala*, as a series of enclosed walls with a witty "misplaced" square as its entrance, in an act reminiscent of SITE's work in the USA.

A further development of the use of the square *mandala* plan combined with the idea of the *wall* can be seen in the Surya Kund 1986). In the centre a *ari yantra* symbolises the axis mundi around which sit the main speakers while the observers gather on the cascading steps on the four sides in a modern reincarnation of the classic *kund* (reservoir or cistern). Like other recent projects, the Surya Kund illustrates new directions in Correa's work.

Correa's work over the past thirty years unfolds in a diverse series of experiments and statements, all of which reveal a pursuit of excellence. Whatever one thinks of his buildings, they are always interesting. His work moves into new territory which is not only more mature but also more fecund. At the same time in the directness of its imagery and geometry it recalls the best qualities of the early work. His is an architecture that provokes and inspires — an architecture that gives to the mainstream of thinking today a finely-honed edge.

Surya Kund

Symposium in session.



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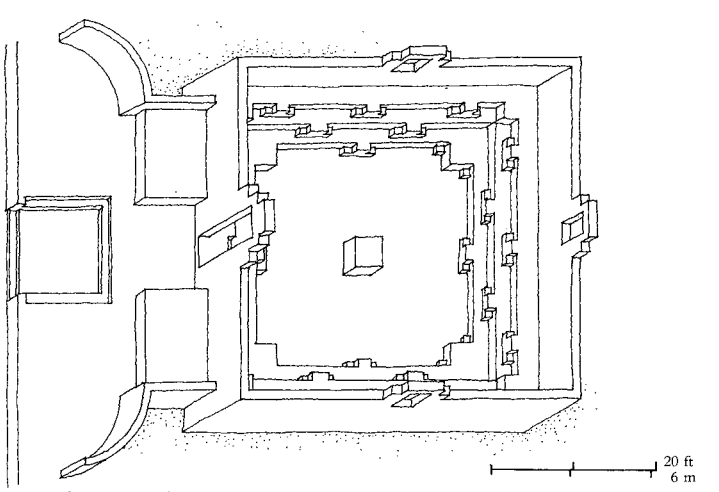
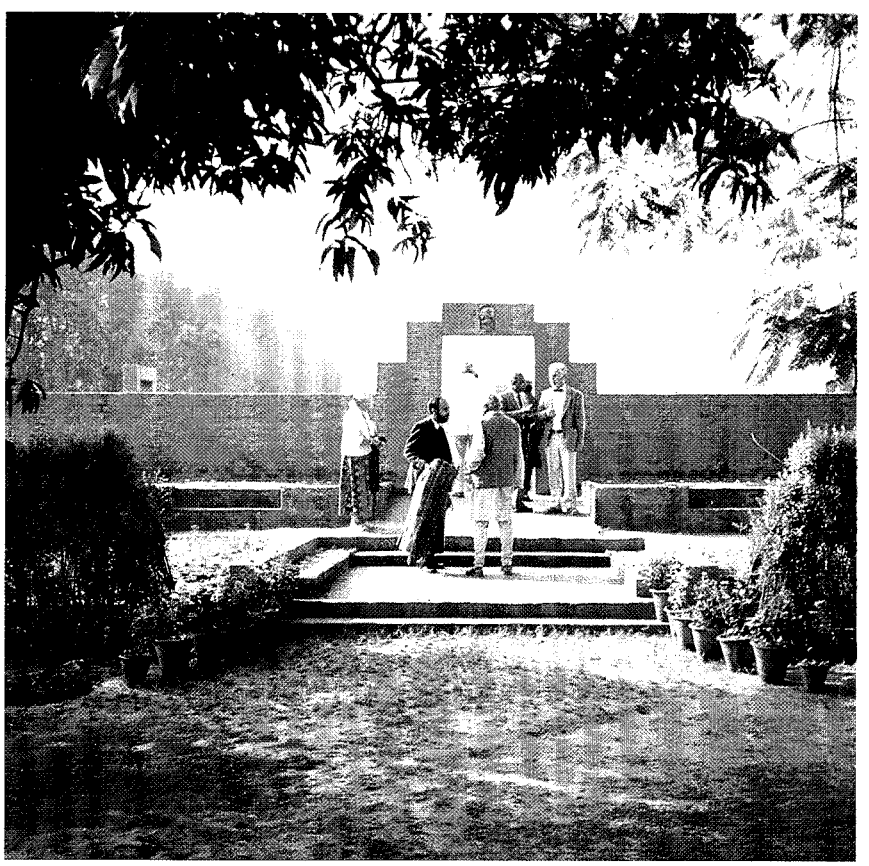


Axonometric.

CHRONOLOGY OF WORKS

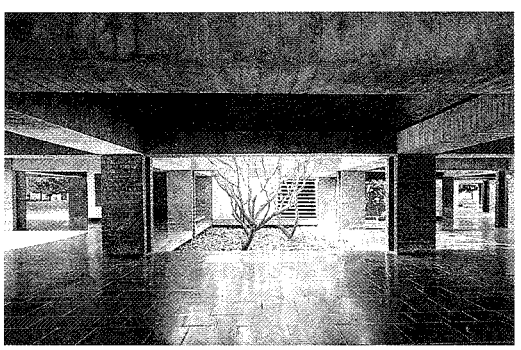


Chronology of Works
1958–1986

Projects are listed at the time of design

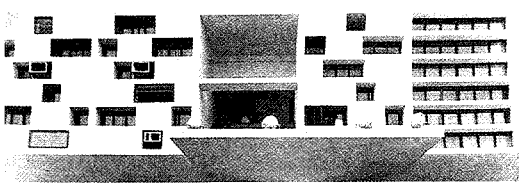
1958

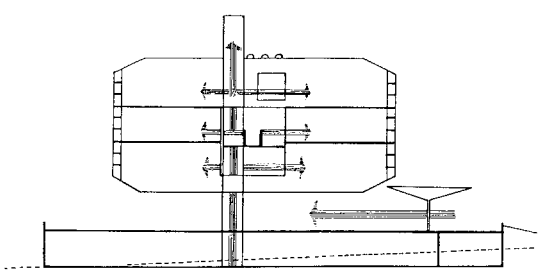
GANDHI SMARAK, SANGRAHALAYA 1958–63, Ahmedabad. Designed for the Sabarmati Ashram Trust.
In the Sabarmati Ashram, the historic home of Gandhi is this memorial which functions as a centre for Gandhian scholars — housing his letters, photographs, and other archival material. (See pages 20–25.)



HANDLOOM PAVILION, 1958, Pragati Maidan, Delhi, Designed for the All-India Handloom Board.
This temporary pavilion designed and built in six months was the first completed work of the office. Brick and mud walls generate a square plan forming a simple multi-level box, through which visitors move in an easy and continuous flow. The roof of wood umbrellas, covered with handloom cloth, suffused the space with an even light. (See pages 26–27.)

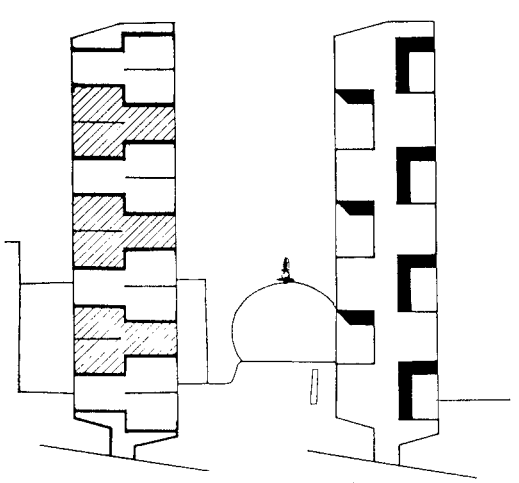
CAMA HOTEL, 1958–59, Ahmedabad. Designed for Cama Hotels Pvt. Ltd.
Two floors of hotel rooms flank a double-height atrium, open at both ends; the whole volume supported by stilts, above a large podium. A third floor of rooms was added during construction. Unfortunately, a number of changes have subsequently been made (particularly at the entrance level) by the owners, without reference to the architect.





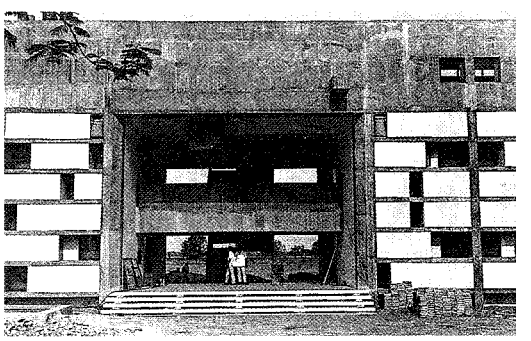
Section

COSMOPOLIS APARTMENTS, (Unbuilt), 1958, Bombay. Designed for the Cosmopolis Housing Society.
The first incarnation of the concept which was later to become the Kanchanjunga Apartments.



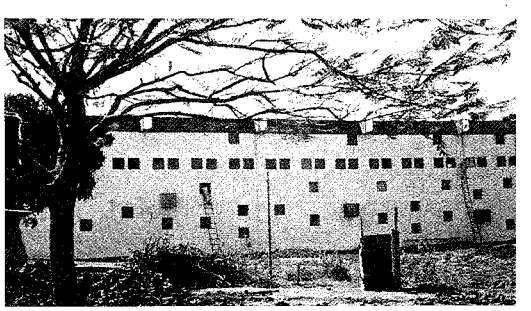
Section Elevation

ADMINISTRATION BUILDING, 1958–60. Anand. Designed for Vallabh Vidyanagar University.
The site for the main administration building faces East-West, which necessitated a unique combination of storage walls, glazed shutters and wooden panels, along these faces to provide protection against the sun. (See pages 28–29.)



1959

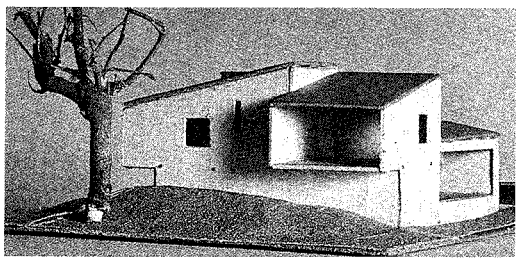
HUMANITIES DEPARTMENT, 1959–60, Anand. Designed for Vallabh Vidyanagar University.
This rural university was an experiment in education started by nationalists during the Independence struggle. The buildings are simple in construction and built departmentally. This Humanities Department has a square plan with a courtyard in the centre. The peripheral walls are load-bearing.



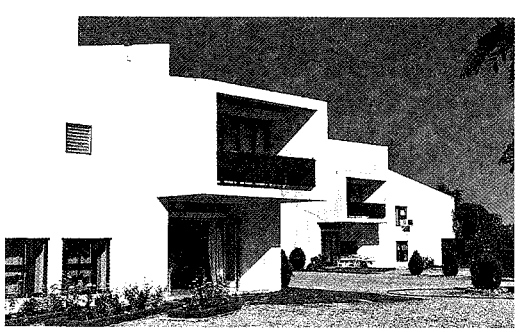
CALICO HOUSING, 1959–61, Chembur, Bombay. Design for Calico Chemicals.
A cluster of row houses on the side of a hill in Chembur to house company executives.

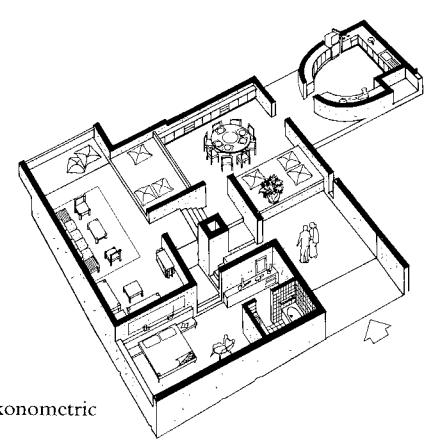
LALBHAI HOUSE, 1959–61, Ahmedabad. Designed for Hansa and Niranjan Lalbhai.
A three-bedroom house at Hansol along the Sabarmati river, set in a large orchard garden.

FUTEHALLY HOUSE (Unbuilt), 1959, Bombay. Designed for Rabia and Sadiq Futehally.
A small two-bedroom house on the side of Pali Hill was a variation of the design of the twin houses at Bhavnagar, using brick walls and terracotta tiled roofs.



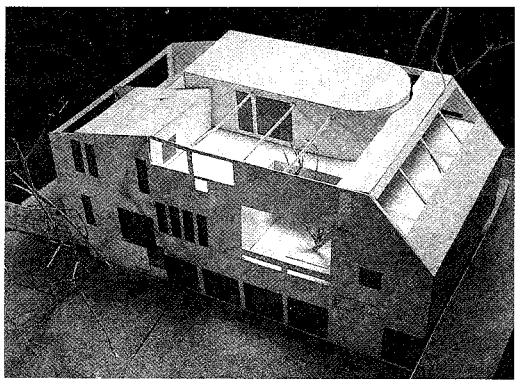
TWIN HOUSES, 1959–60, Bhavnagar, Gujarat. Designed for the Merchant brothers.
These twin houses were designed for a large joint-family headed by two brothers. Each house is an ascending spiral of spaces; one house turns clockwise and the other anti-clockwise. Their plans based on a grid of 9 squares of 4.5 metres × 4.5 metres each, allow the rooms to interlock around the central square (housing the circulation) which acts as a flue, setting up convection currents through the rooms.
The cantilevered balconies of the bedrooms emphasise the ascending spiral of the interior spaces, as also the direction of the contrapuntal "twist" of of each house. And although their plans are generically the same, the two houses are not identical — the areas and position of the varied functions having been adjusted to suit the special requirements of each brother's immediate family.



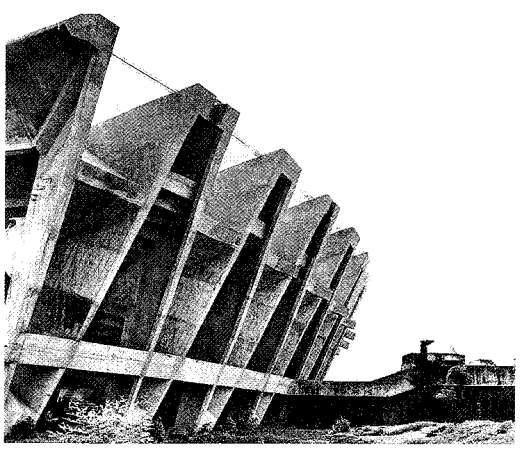


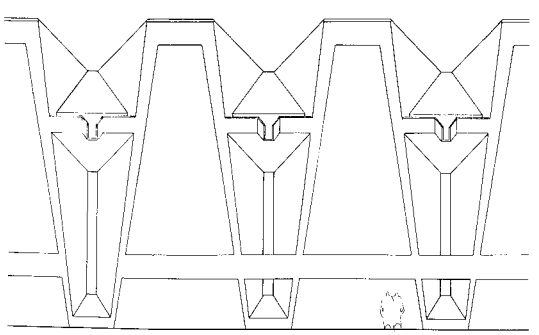
Axonometric

SEN HOUSE, 1959–61, Calcutta. Designed for Chini and Sanjoy Sen.
A large multi-levelled house, consisting of a complex interlock of rooms and terrace gardens.



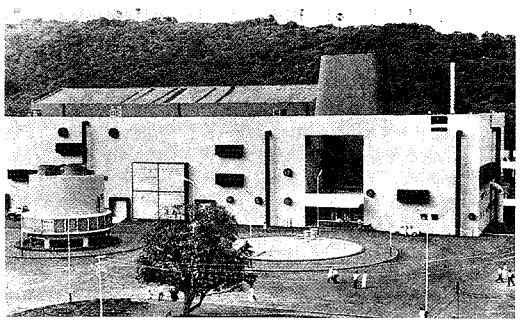
CRICKET STADIUM & SPORTS COMPLEX, 1959–66, Ahmedabad. Designed for the Ahmedabad Municipal Corporation.
The programme, which called for a stadium to seat 35,000 people, an extensive club house and swimming pool, tennis courts and badminton courts, etc., has only been partially completed due to lack of funds.





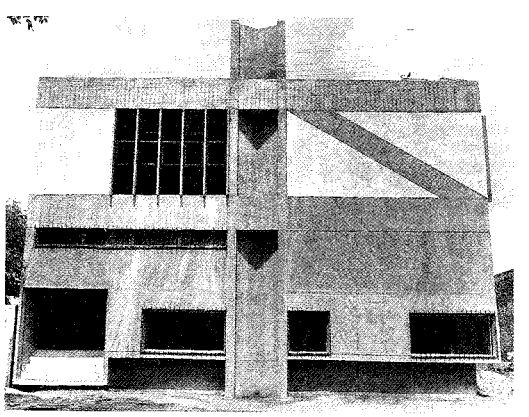
Elevation

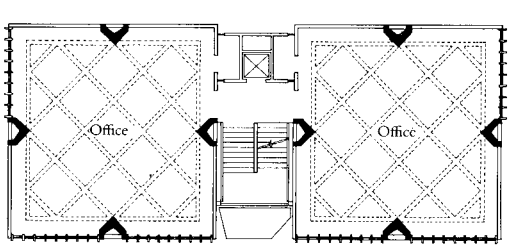
PLUTONIUM PLANT, 1959–63, Bhabha Atomic Research Centre, Bombay. Designed for the Department of Atomic Energy.
This plant for processing plutonium, represents a unique effort by Indian scientists in the field of Atomic Energy.



1960

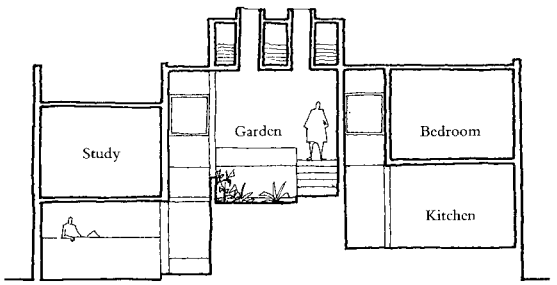
GUN HOUSE, 1960–62, Ahmedabad. Designed for the Ahmedabad Rifle Association.
The Ahmedabad Rifle Association needed a building to house their offices and showroom. Since their requirements were small and their initial funds limited, they wanted a plan which would provide direct access to independent rentable offices, and which could be added to later on.
Thus the building consists of 2 separate blocks each 12 metres × 12 metres. The floor slabs are diagrids, supported by 4 columns placed at the middle of each external wall, augmented by diagonal braces to the corners. This creates an internal office space free of obstruction. The central slot between the two blocks is used for circulation and toilets.



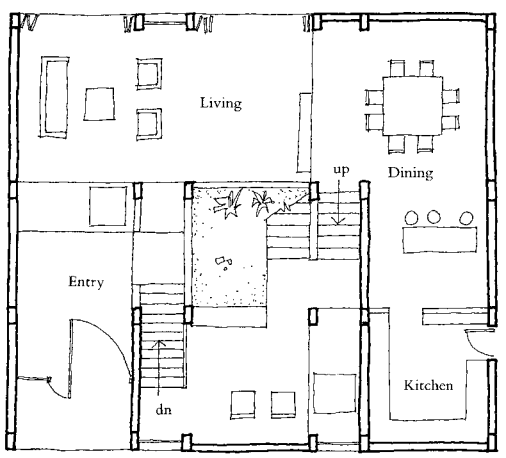


Plan

HUTHEESING HOUSE (Unbuilt) 1960, Ahmedabad. Designed for Poornima and Anil Hutheesing.
A variation on the Bhavnagar house, with the nine squares modified to a tartan grid, so as to replace the circulation by a garden in the centre.



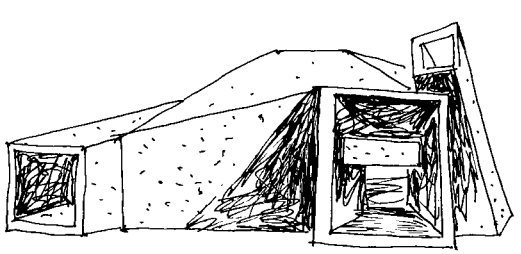
Section



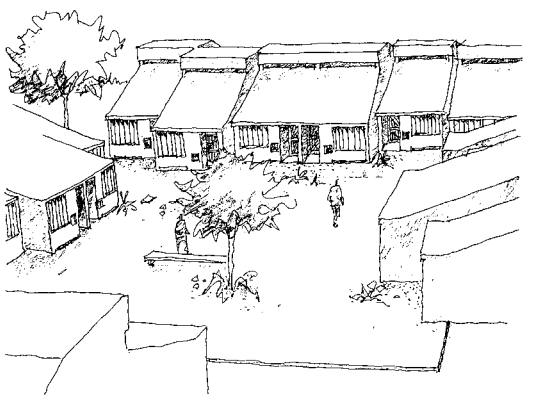
Plan

1961

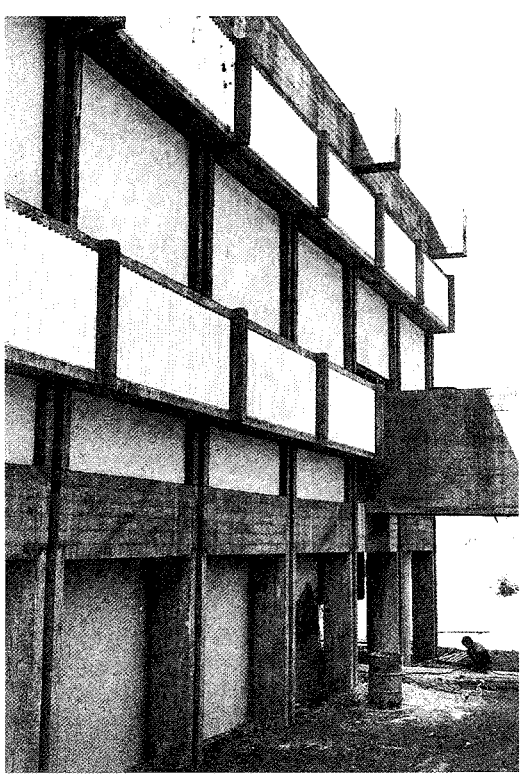
HUNDUSTAN LEVER PAVILION, 1961, Delhi. Designed for Hindustan Lever.
A further development of the spatial concept of the Handloom Pavilion, metamorphosised by the narrow site and the choice of gunnited concrete for the outer shell. (See pages 30–31.)



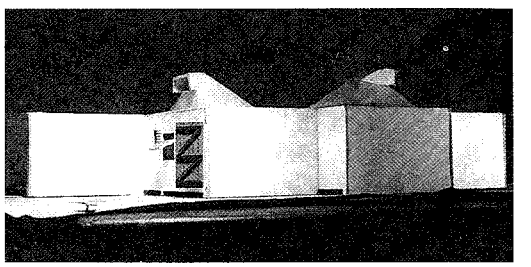
TUBE HOUSING, 1961–62, Ahmedabad. Designed for the Gujarat Housing Board.
Also known as the "tube" house, this was first prize winner in an all-India competition for low-cost housing (judges: Jane Drew and A.P. Kanvinde). The programme specified walk-up apartments, but these row-houses provide the same density — and larger living space per family. Each unit is shaped so that the hot air rises and escapes from the top, setting up a convection currents of natural ventilation. Inside the units there are almost no doors; privacy being created by the various levels themselves. (See box, page 32.)

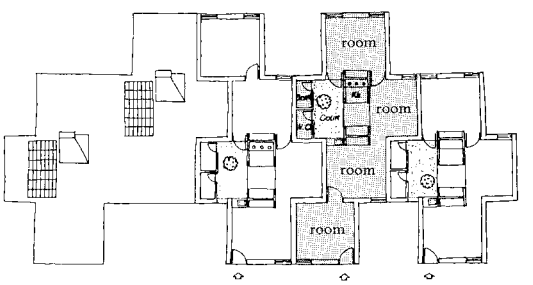


LABORATORY & PROCESSING PLANT, 1960–62, Bombay. Designed for Suhrid Geigy Pvt. Ltd.
This project is situated in Chembur near the Calico Housing (mentioned earlier). The laboratory has a flexible system of services for supplying gas, water and electricity at each table. Behind it is the work area, roofed over by an RCC plate structure.



LOW-INCOME HOUSING (Unbuilt), 1961, Ahmedabad. Designed for the Gujarat Housing Board.
A variation on the tube house. Instead of the restrictive parallel walls of the conventional row house, the width of each unit varies so that the internal relationship of spaces is more flexible. Each unit has an internal courtyard.

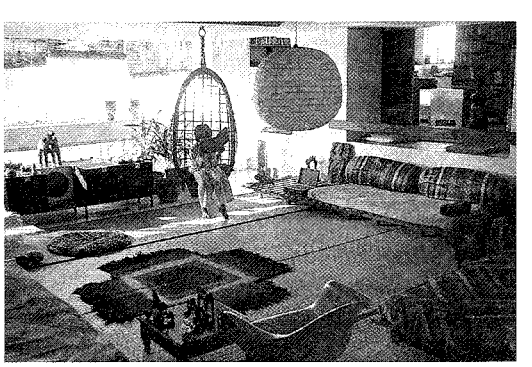




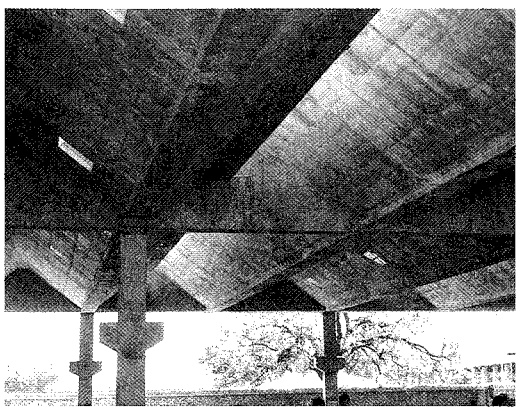
Plan

CHEMICOAT FACTORY, 1961–63, Baroda. Designed for Chemicoat Co. Ltd.
In this small processing unit, light and ventilation are provided by roof monitors and the profile of the side walls.

SONMARG APARTMENTS, 1961–66, Bombay. Designed for the Sonmarg Housing Society. This design is an earlier version of the Rallis apartments, wherein verandahs, studies, etc., form a zone of protection around the main living spaces. Each unit is open on three sides and has two levels, interconnected so as to create an interesting ambience of cross-light and through ventilation. Verandahs running along the East and West faces of the building form a protective zone from the sun, and the heavy south-west monsoon.

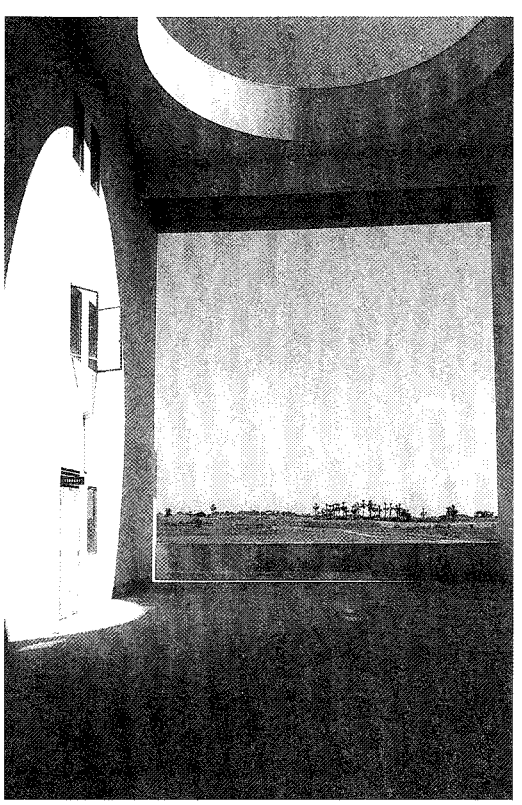


AMTS WORKSHOP, 1961–63, Ahmedabad. Designed for the Ahmedabad Municipal Transport Service.
This main workshop and bus yard for the AMTS, is on a site covering 10 acres in the heart of the city. The task involved the development of a master plan, as well as the design of the buildings. In the main central structure, the administrative offices are placed on a mezzanine overlooking the two acres of covered workshop area, thus providing direct supervision. The structure used is of RCC folded plates, allowing in natural light and ventilation.

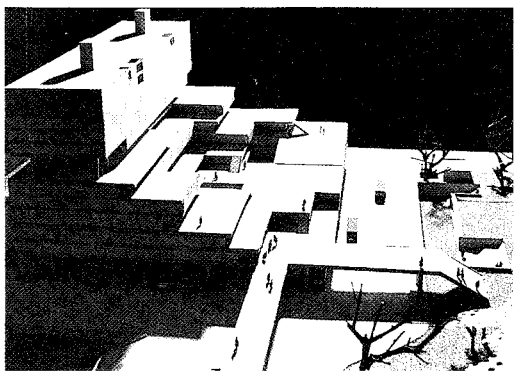


1962

SEN-RALEIGH POLYTECHNIC, 1962–64, Asansol. Designed for the Asansol Education Society. A training centre consisting of workshops and classrooms, the spaces organised around a large atrium, so as to encourage through ventilation.

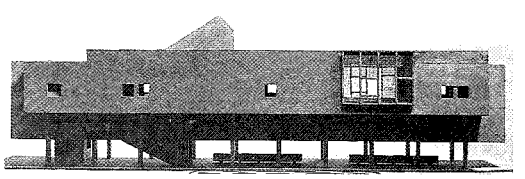


LAI DARWAZA CENTRE (Unbuilt), 1962, Ahmedabad. Designed for the Ahmedabad Municipal Transport Service.
A major bus interchange for the city, with shopping and offices above. A complex interlock of various types of vehicular and pedestrian flows. The restaurants, shops and other commercial activities are on decks which connect directly (via overbridges) to the public garden across the road.



WADAJ BUS TERMINAL, 1962–63, Ahmedabad. Designed for the Ahmedabad Municipal Bus Transport Service.
A large hyperbolic paraboloid umbrella forms the bus stop, behind which is located a canteen for the public as well as offices and maintenance workshops for the AMTS.

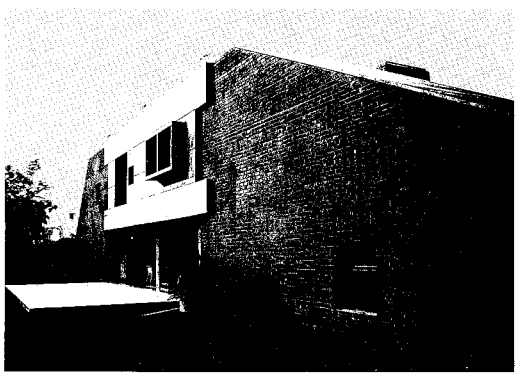
NAVRANGPURA BUS TERMINAL, 1962–63, Ahmedabad. Designed for the Ahmedabad Municipal Transport Services.
Offices and canteen combine with a bus station.



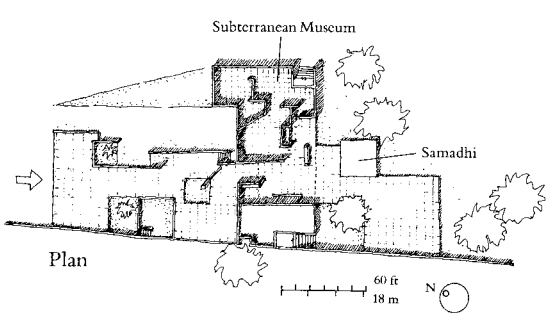
PALM AVENUE HOUSE, 1962–64, Calcutta. Designed for Nilu and Abhijit Sen.
Re-modelling of an old mansion, including addition of some new bedrooms.

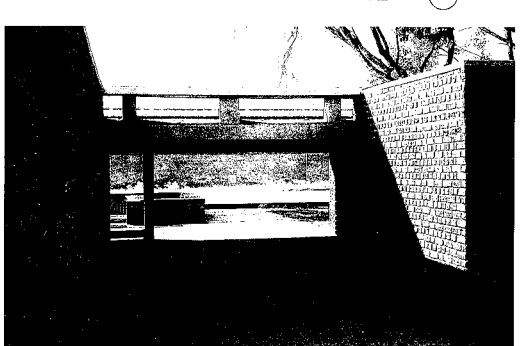
FUTEHALLY HOUSE, 1962–64, Bombay. Designed for Zeenat and Abu Futehally.
A three-bedroom house on the slope of Pali Hill. Has since been demolished and replaced by a multi-storeyed apartment building.

RAMKRISHNA HOUSE, 1962–64, Ahmedabad. Designed for Ramkrishna Harivalabdas.
A large residence for a mill owner family in Ahmedabad. This house is based on the same spatial and climatic concepts developed for the Tube House and the Lever Pavilion. The plan sets up a series of parallel bearing walls, creating a number of courtyards, climaxing in the main garden along the South. (See pages 32–35.)

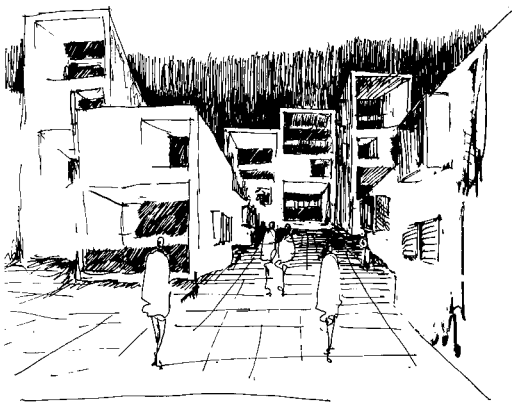


KASTURBA GANDHI SAMADHI, 1962–65, Poona. Designed for the Gandhi Smarak Nidhi.
Kasturba, the wife of Mahatma Gandhi, was under house arrest in Poona when she died in 1944. This memorial was built on the spot where she was cremated.
Located on the edge of the Aga Khan Gardens, the memorial consists of a gently descending path, open-to-sky, defined by a series of parallel brick walls, culminating in the samadhi itself. At several points along the path there are ramps up to levels from which the surrounding landscape is viewed. The podium created by these terraces houses a modest museum devoted to Kasturba.



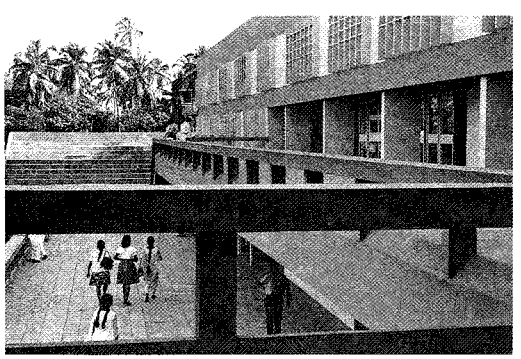


BOYCE HOUSES, (Unbuilt), 1962–63, Poona. Designed for Dr. & Mrs. Boyce.
Second-generation incarnations of the Cosmospolis concept. Prototypical variations of the basic theme are used to form a cluster of townhouses.



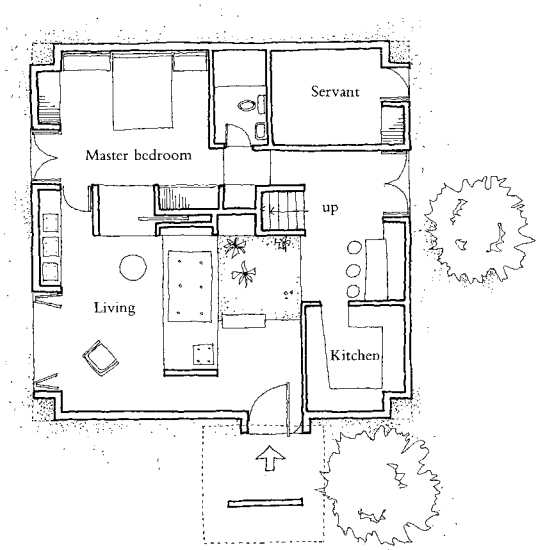
1963

CATERING INSTITUTE, 1963–67, Bombay. Designed for the Ministry of Food, Government of India.
Built on a restricted city site, this project integrated the teaching and residential facilities into one building, arranged in the form of a stepped section. The terraces are accessible from the indoor teaching areas, student lounges, etc., adding considerably to the kind of casual usable open-to-sky space in the warm climate of Bombay: a theme later elaborated in the SNDT campus at Juhu.



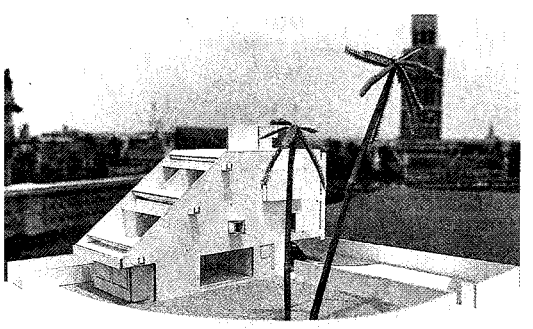
BATTERY PLANT, 1963–66, Hyderabad. Designed for Union Carbide (India).
A manufacturing plant together with administrative offices and staff canteen.

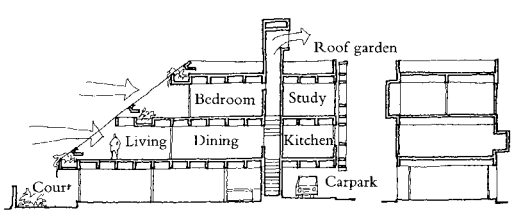
SHUKLA HOUSE, (Unbuilt), 1963, Ahmedabad. Designed for Mr. & Mrs. S. Shukla.
A small two-bedroom house with open terraces on the upper floor.



Plan 10 ft 3 m

THAKORE HOUSE, (Unbuilt), 1963, Bombay. Designed for Mr. & Mrs. R. Thakore.
A 3-bedroom house and studio facing the sea at Juhu Beach.





Section 20 ft 6 m

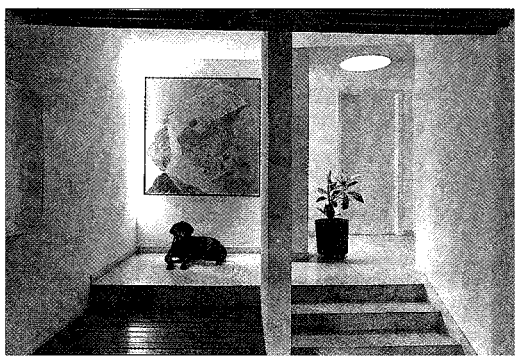
1964

MASCARENHAS HOUSE, 1964–65, Bangalore. Designed for Dr. & Mrs. G. Mascarenhas.
The long slope of the tiled roof closes off this three-bedroom house from the road and opens it to the main garden at the rear.

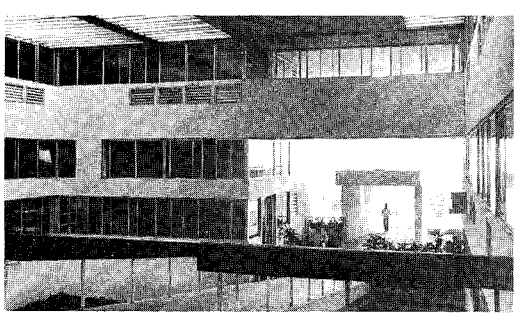
1965

OFFICE COMPLEX, (Unbuilt), 1965, Jaipur, Rajasthan. Designed for the Rajasthan State Electricity Board.
A four storey rectangular building, lit by three internal courts of varying heights.

DUTTA HOUSE, 1965–66, Hauz Khas, Delhi. Designed for Admiral and Mrs. Dutta.
A large multi-level private residence, with terrace gardens.



ECIL ADMINISTRATIVE COMPLEX, 1965–68, Hyderabad. Designed for the Electronics Corporation of India Ltd.
An experimental office building that is both economical and energy conscious. (See pages 36–39.)



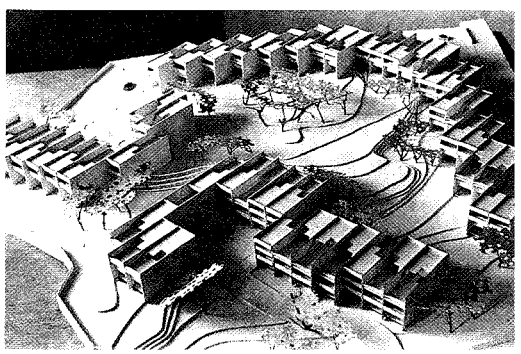
1966

PAREKH HOUSE, 1966–68, Ahmedabad. Designed for Mr. & Mrs. Dilip Parekh.
A realisation of the winter/summer sections developed for the Cablenagar Township. (See pages 42–43.)

SABARMATI ASHRAM GUEST HOUSE, (Unbuilt), 1966, Ahmedabad. Designed for the Gandhi Smarak Nidhi.
A small guest house opposite the Gandhi Smarak Sangrahalaya.

PEDESTRIAN SYSTEM, (Unbuilt), 1966, Bombay. Designed for the Bombay Municipal Corporation.
A scheme to allow pedestrians to walk (above vehicular traffic) straight out of the commuter trains arriving at Churchgate Station to the offices around Flora Fountain.

PUNJAB GROUP HOUSING, (Unbuilt), 1966–67, Chembur, Bombay. Designed for the Punjab Co-operative Housing Society.
The Scheme consisted of 60 row-houses (of 2 and 3 bedrooms each) around a central community space.



1967

CABLENAGAR TOWNSHIP, (Unbuilt), 1967, Kota, Rajasthan. Designed for Oriental Power Cables Ltd.
Ideas were developed for this township on climatic design and neighbourhood layouts which were used in later townships. The project was not built except for a few prototype units. (See Pages 40–41.)

MENEZES HOUSE, 1967–68, Poona. Designed for Commander & Mrs. H. Menezes.
A tiled-roof two storey house, with a flexible grouping of internal spaces, so as to be usable in several different ways by a family with married children.

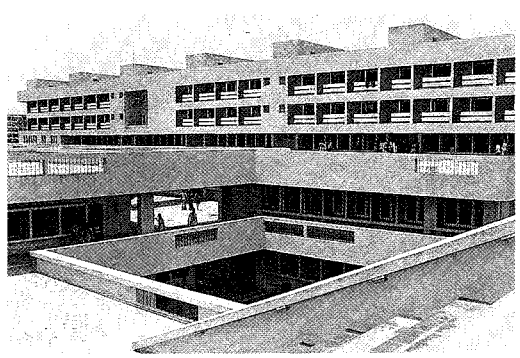
FERREIRA HOUSE, 1967–68, Bombay. Designed for Mr. & Mrs. N. Ferreira.
A four bedroom house with provision for additional apartments on the upper floors for the children when they grow up.

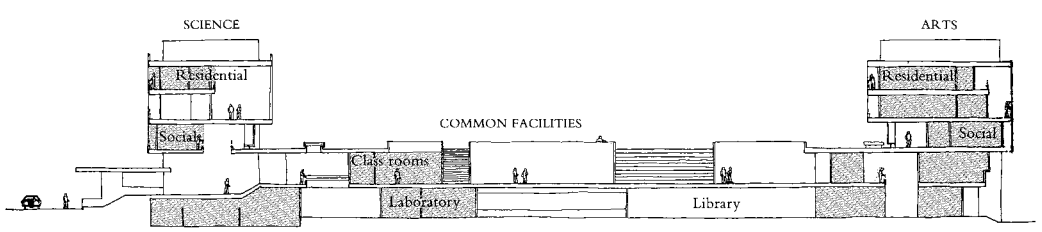
PATWARDHAN HOUSES, 1967–69, Poona. Designed for Mr. & Mrs. J.H. Patwardhan.
Two two-bedroom houses, sharing a third bedroom. The living rooms are centrally placed so as to act as breeze-ways for cross ventilation.

ST. ELIZABETH'S NURSING HOME, (Unbuilt), 1967–69, Bombay. Designed for the Daughters of the Cross.
An additional wing of 60 beds to an existing nursing home.

RAJENDRA PLACE, 1967–70, Delhi. Designed for the Delhi Development Authority.
This large commercial complex was one of the first of the 7 district centres stipulated by the Delhi Master Plan. The programme called for preparation of the overall plan and control drawings for over 200,000 square metres of offices, shops and cinemas. The natural contours of the site are utilised so as to provide, at all points, a separation of vehicles and people. Thus the pedestrian areas form one continuous plaza; each building connecting with this plaza at one end, and with the vehicular circulation system at the other.

SNDT UNIVERSITY CAMPUS, 1967–75, Juhu, Bombay. Designed for the Shree Nathibai Damodar Thackersey Women's University.
A multi-disciplinary campus in one continuous structure. The Science faculty is along one perimeter, the Arts along the other, with common facilities placed centrally to both. At the lowest level are located the laboratories (allowing an economical system of flexible ducts underground). On the next level are classrooms and administration, surmounted in turn by social facilities. The two topmost levels consist of hostel rooms.
In section, the levels step back, creating a valley of cascading terraces — and also allowing internal circulation in the lowest two floors (i.e. laboratories, classrooms and administration) to have top-lighting and through ventilation, despite the double-loaded corridors. Activities start in these lower levels in the morning, and move upwards through the complex during the course of the day.



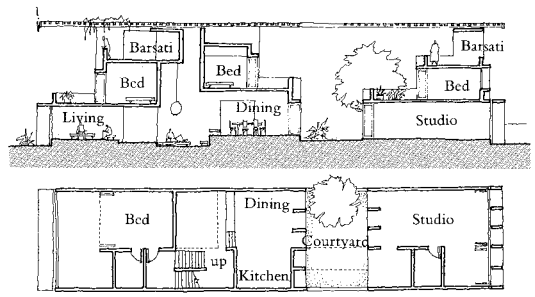


Section

60 ft
18 m

1968

CORREA HOUSE (Unbuilt), 1968, Ahmedabad.
For this long narrow site, the summer and winter sections of the Parekh house are placed not side by side, but consecutively, in one linear interlock.

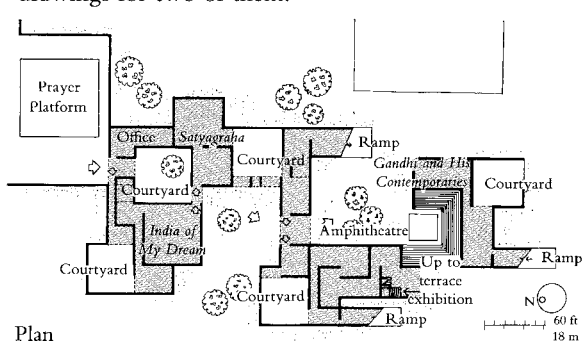


Plan and section

30 ft
9 m

N

GANDHI DARSHAN, 1968–69 Rajghat, Delhi. Designed for the Gandhi Darshan Centenary. This complex at Rajghat consists of 4 pavilions each commemorating different aspects of the teachings of Mahatma Gandhi. It is an amorphous "non-building", structured by a pedestrian path moving along a shifting axis through a series of courtyards. The brief involved preparing the Master Plan for the four integrated pavilions, and detailed architectural drawings for two of them.

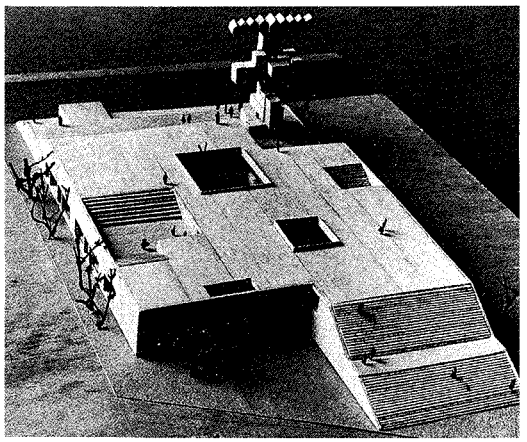


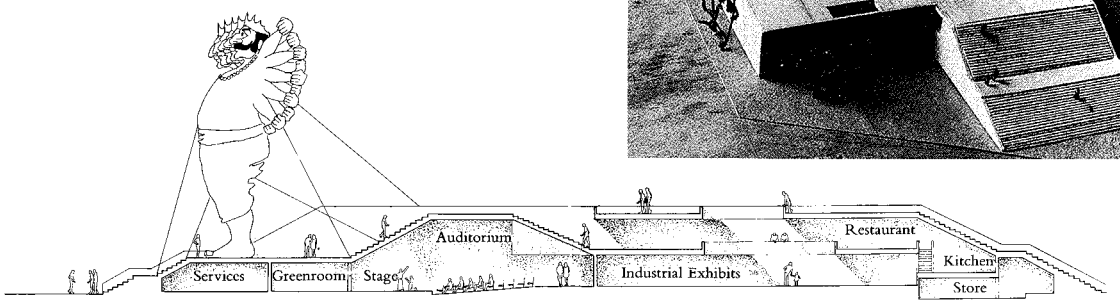
Plan

HAWKERS/PAVEMENTS (Unbuilt), 1968, Bombay. Designed for the Bombay Municipal Corporation
A proposal to modify the profile of some of the main sidewalks in Bombay. (See box page 49.)

1969

INDIA PAVILION (Unbuilt), 1969, Osaka, Japan. Designed for the Government of India.
Another version of the "non-building", with the pilgrim pathway leading upward through the internal spaces to the terrace platforms above, and then back again down the cascading steps to the entry level.

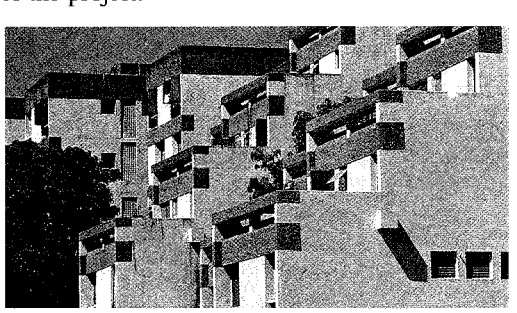




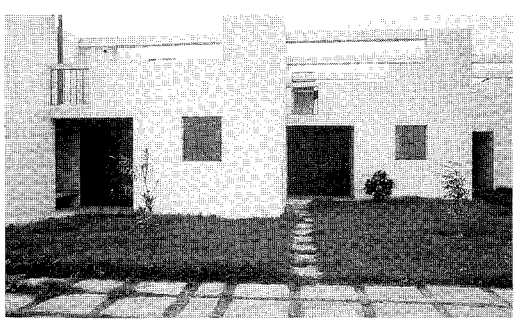
Section

EMD PLANT, 1969–70, Bombay. Designed for Union Carbide (India).
Designed in collaboration with M.N. Dastur & Co., this plant created an especially difficult problem since the functional requirement necessitated a great number of different heights. However, an architectural vocabulary was evolved which used these requirements to develop an evocative silhouette. All the outside dimensions of the building are exact multiples of the asbestos sheet with which constitute the external cladding.

JEEVAN BIMA NAGAR TOWNSHIP, 1969–72, Borivli, Bombay. Designed for the Life Insurance Corporation of India.
Housing for 16,000 persons on a 60 acre site in a suburb of Bombay. The units, which range in size from one room to five, generate a number of typologies (from row-houses to walk-up apartments), all using multiples of the same structural module. The construction (up to 5 storeys high) is of reinforced brick bearing-walls, minimising the use of concrete and steel. In certain cases, the units step back so as to provide open terraces for the occupants. All units have direct access to a central green area of over 20 acres which forms the heart of the project.



PREVI HOUSING, 1969–73, Lima, Peru. Designed for the Government of Peru and the United Nations.
President Belaunde (an architect head of government), was the political force behind the Previ project which invited 13 international architects to design experimental low-income housing. (See pages 52–55.)

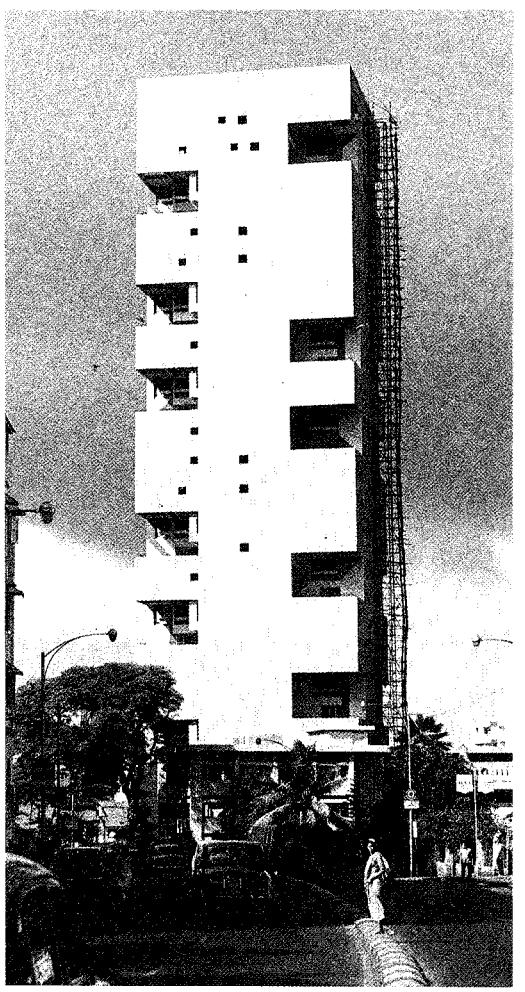


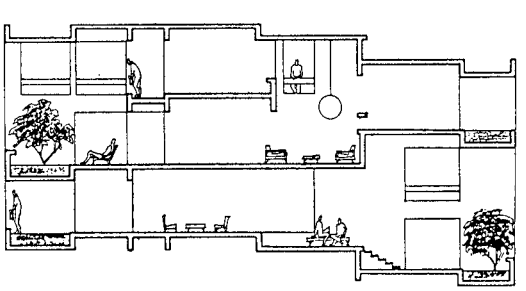
KOVALAM BEACH RESORT, 1969–74, Kovalam, Kerala. Designed for the Ministry of Tourism, Government of India.
Development of one of India's most beautiful beaches, using the local vocabulary of plastered brick walls and tiled roofs. (See pages 82–87.)

1970

HEREDIA HOUSE, 1970–73, Chembur, Bombay. Designed for Mr. & Mrs. C. Heredia.
This three-bedroom house on a gently sloping site in Chembur, a suburb of Bombay, uses tiled roofs and brick bearing walls.

KANCHANJUNGA APARTMENTS, 1970–83, Bombay. Designed for T.V. Patel Pvt. Ltd. (*Associate Architect: Pravina Mehta*)
The concept originated for the Cosmopolis Apartments (1958) finally built some twelve years after being designed. (See pages 56–61.)

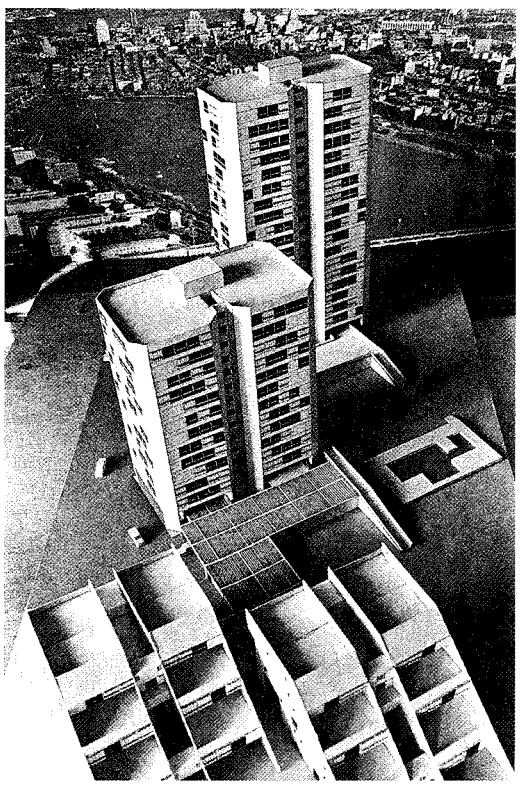


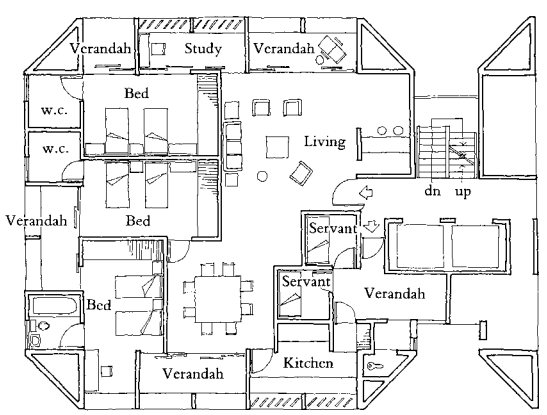


Section

1971

DCM APARTMENTS (Unbuilt), 1971, Delhi. Designed for the Delhi Cloth Mills.
The third incarnation of the theme first developed for Sonmarg Apartments, and which was later metamorphosised in the Rallis Apartments.



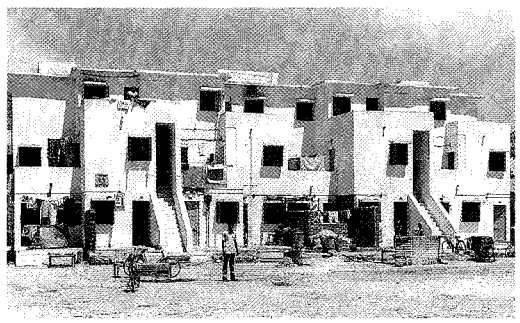


Plan

N

10 ft
3 m

LOW-INCOME HOUSING, 1971–72, Ahmedabad. Designed for the Gujarat Housing Board.
A high density housing project, providing accommodation for 5,000 people in an area of 4.9 hectares. Five different types of designs were developed, each providing the range of 1, 2, and 3 units required by the programme. This gives a variety of configurations, varying from incremental housing on small individual sites to two-storey walk-ups with open-to-sky terraces.

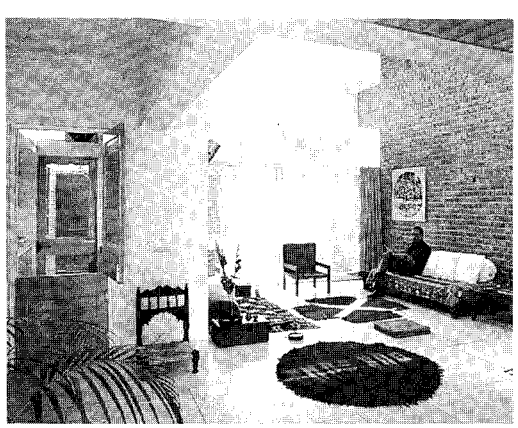


1972

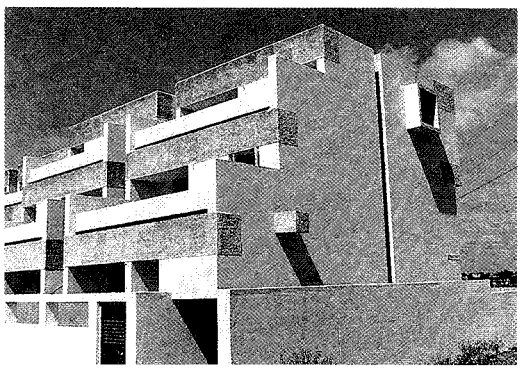
ERANGAL BEACH RESORT (Unbuilt), 1972, Bombay. Designed for the Department of Tourism, Government of Maharashtra.
Development of a beach near Mandwa, just North of Bombay, as an international tourist centre.

SEN FARMHOUSE (Unbuilt), 1972, Calcutta. Designed for Nilu and Abhijit Sen.
A weekend house for a Calcutta family: 4 caves (for sleeping, cooking, etc.) around a multi-purpose pergola-covered central space.

MOZUMDAR HOUSE, 1972–74, Delhi. Designed for Riten Mozumdar.
This house on a 200 square metres site for one of India's leading textile and graphic designers, combines a studio/workshop and residence.

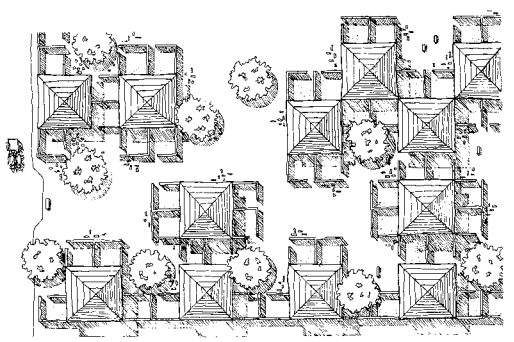


BIMANAGAR TOWNSHIP, 1972–74, Bangalore. Designed for the Life Insurance Corporation of India.
A township for 15,000 persons, where every family has access to open-to-sky space, (either a garden or a terrace), a pattern of living conducive to the climate and life-style of Bangalore.



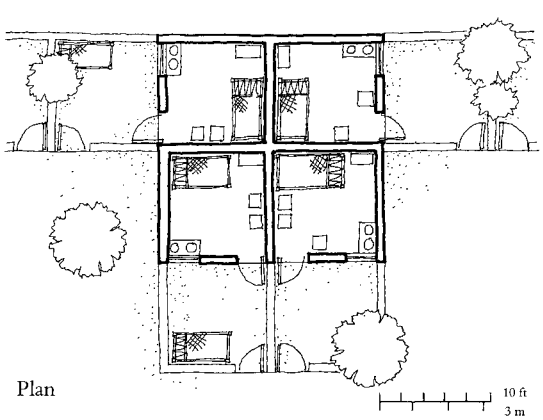
1973

SQUATTER HOUSING (Unbuilt), 1973, Bombay. Designed for CIDCO (City and Industrial Corporation).
The basic module of four one-room units (under a pyramidal roof) is repeated to create a hierarchy of spaces. An idea further developed in the Belapur housing (1983–85).



Site plan

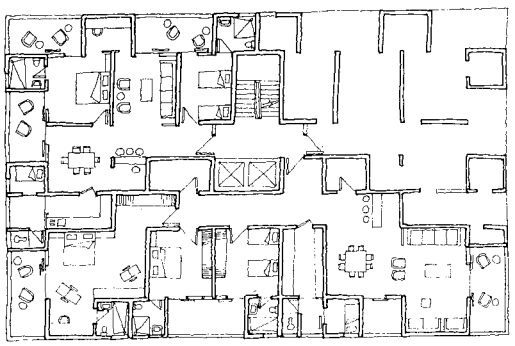
30 ft
9 m



Plan

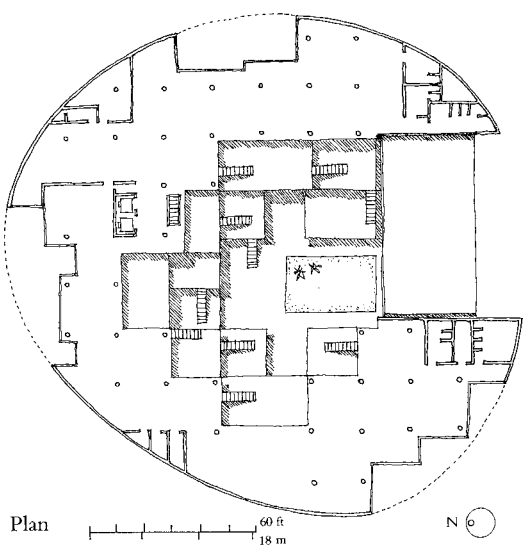
10 ft
3 m

RALLIS APARTMENTS (Unbuilt), 1973, Bombay. Designed for Rallis Brothers.
Another version of the idea of the "two-lines-of-defence" theory first explored in the Sonmarg Apartments (1961) and then in the DCM Apartments (1971).

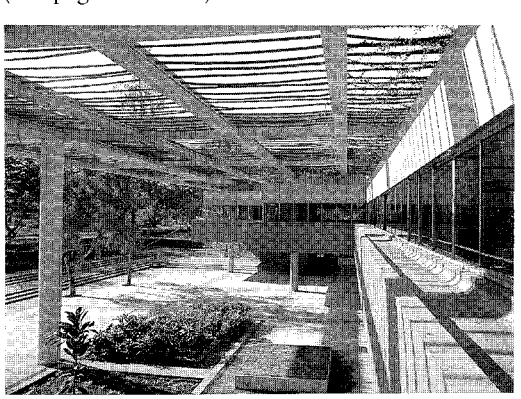


Plan

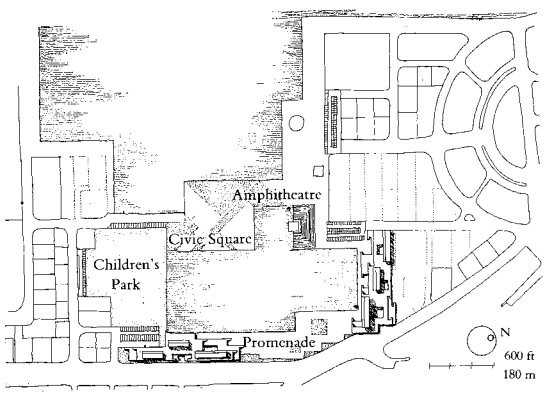
KSEB OFFICE (Unbuilt), 1973, Bangalore. Designed for the Karnataka State Electricity Board.
Five decks of offices around a central atrium.



KALA AKADEMI, 1973–83, Panaji, Goa. Designed for the Kala Academy.
A performing arts centre, together with dance and music schools, along the Mandovi river in Panaji. (See pages 118–125.)



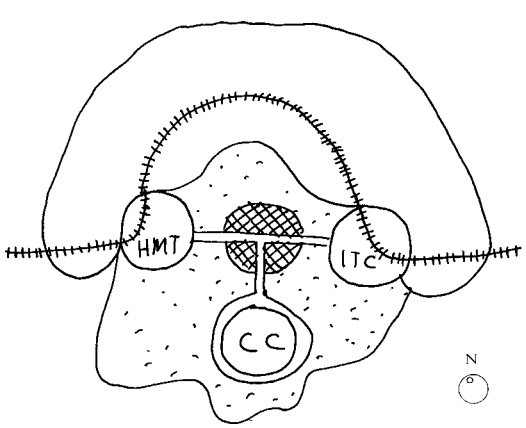
BACKBAY WATERFRONT (Unbuilt), 1973, Bombay. Prepared for the Save Bombay Committee.
The purpose of this project was to put a stop to the continuing reclamation of land at Nariman Point and Cuffe Parade, an activity which was adding considerably to the already enormous pressures at the southern end of Bombay — and generating enormous political corruption in the process. The perimeter of land already reclaimed will be sealed off by a belt of community facilities and promenades along the waterfront. The Government of Maharashtra has accepted this scheme but has still to follow through with its implementation.



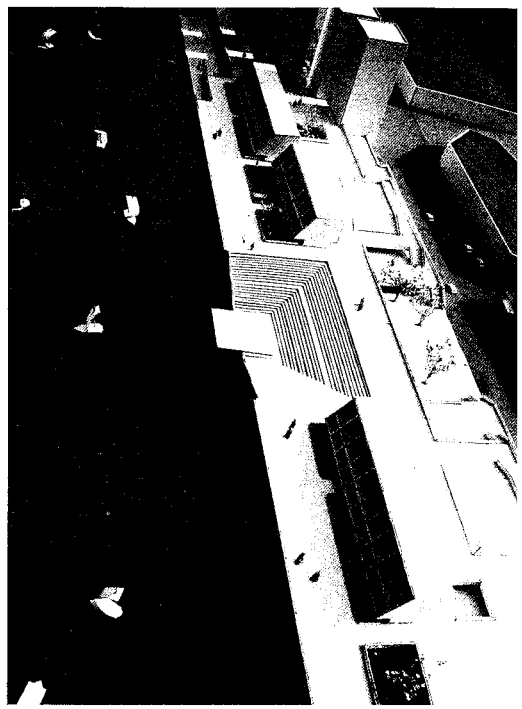
Site plan

1974

STRUCTURAL PLAN FOR BANGALORE, 1974. Prepared for the Government of Karnataka.
Bangalore over the last decade has been growing at 7% — almost twice the rate of Bombay. This project outlined a strategy for using this enormous growth rate to shift the centre of gravity north of the existing city centre — which otherwise is crumbling under the new pressures. This could be done in a series of consecutive stages, each of which used existing infrastructure (under-used railway lines, etc.) to gradually develop the new structure.

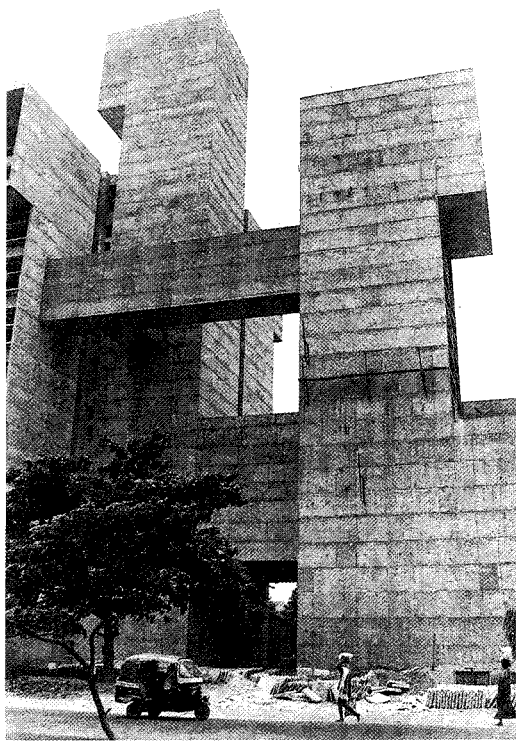


COCHIN WATERFRONT (Unbuilt), 1974, Cochin, Kerala. Designed for the Government of Kerala. Development along the waterfront to create housing and shopping facilities as well as amphitheatre and public promenades.



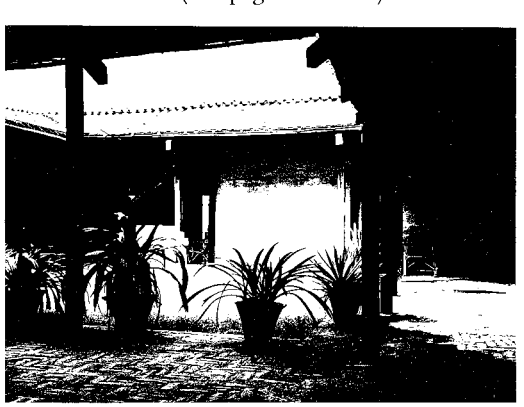
SALVACAO CHURCH, 1974–77, Bombay. Designed for the Archdiocese of Bombay.
This church consists of a series of interlinked spaces, some covered, and others open-to-sky. The shell roofs are ventilated at the top, thus setting up continuous convection currents of air. The areas are functionally differentiated, in an analogue of Christ's life. First the years of preparation; secondly the years of public life; and finally, the death and resurrection. Some elements of the design were modified in 1983. (See pages 106–111.)

VISVESVARAYA CENTRE, 1974–80, Bangalore. Designed for the Life Insurance Corporation of India.
The first phase of this complex provided over 20,000 square metres of offices, shops and parking. There are two architectural elements in the design: firstly the vertical tubes, each 8 metres × 8 metres in plan, which are grouped together to form office spaces at various points on the site; secondly, the horizontal podium which ties the complex together and which provides the centralised parking and shopping facilities.

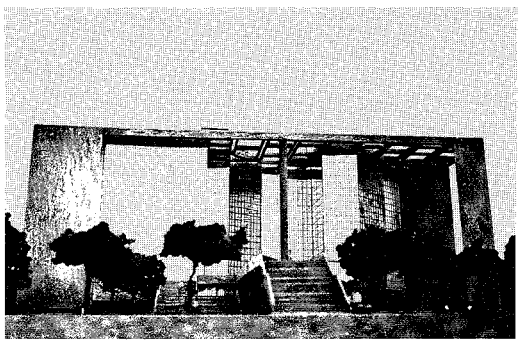


1975

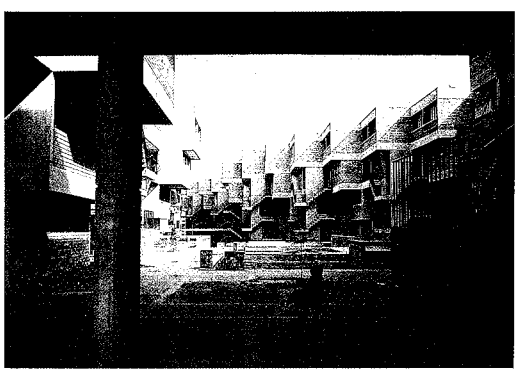
CRAFTS MUSEUM, 1975, Delhi. Designed for the Trade Fair Authority of India.
Handicrafts and existing buildings from different parts of India organised along a pedestrian street, going from village to temple to *darbar* — a metaphor for India herself. (See pages 130–133.)



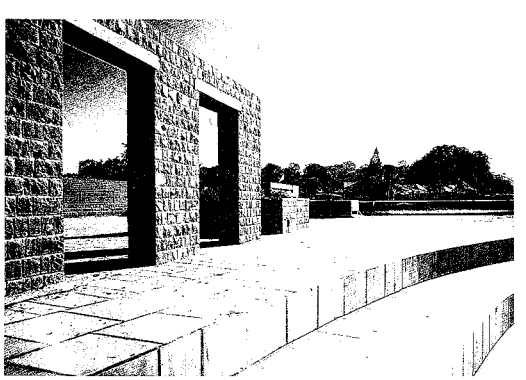
LIC CENTRE, 1975–86, Delhi. Designed for the Life Insurance Corporation of India.
The site for this project forms a proscenium between the old buildings of Connaught Circle and the many high-rise buildings beyond. (See pages 126–129.)



TARA HOUSING, 1975–78, Delhi. Designed for the Tara Cooperative Group Housing Society Ltd. (*Associate Architect: Jasbir Sawhney.*)
Two decks of narrow double-storey houses, surrounding a community space. (See pages 62–65.)

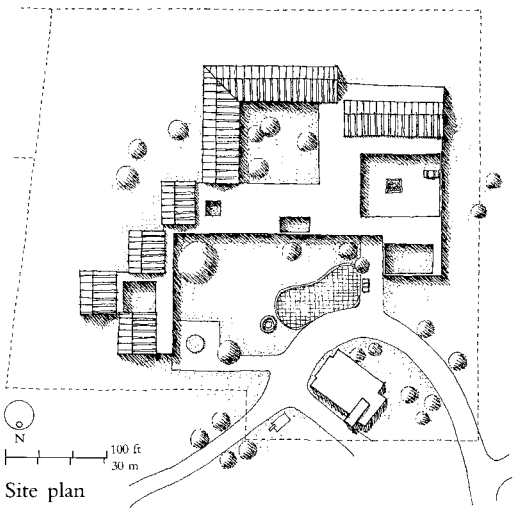


BHARAT BHAVAN, 1975–81, Bhopal. Designed for the Government of Madhya Pradesh. (*Lighting Consultant: Michael Brawne.*)
A public garden, museum, and performing arts centre, all combined on the side of a hill, overlooking a lake in Bhopal. (See pages 112–117.)



1976

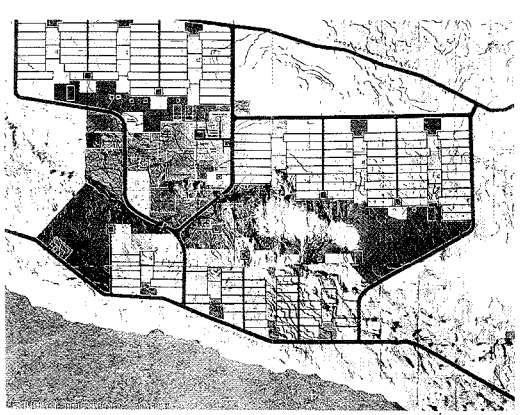
WALLENBERG CENTRE (Unbuilt), 1976, Madras. Designed for the Western India Match Company. A training centre consisting of low-rise tiled roofed buildings around courtyards.



Site plan

SHIMOGA CAMPUS (Unbuilt), 1976, Karnataka. Designed for Mysore University.
This campus on the top of a hill in a beautiful region of Karnataka, famed for its thick teak forests, was designed to use the contextual rural vocabulary of white plastered walls and tiled roofs.

STEEL TOWNSHIP, 1976–77, Misurata, Libya. Designed for the Steel Authority, Government of Libya.
The master plan for this township of 50,000 persons was developed in collaboration with M.N. Dastur & Co., who were the prime consultants for the development of the steel plant. Ten sectors for approximately 5,000 persons each were generated, in successive stages, along the arterial roads which run at the northern and southern boundaries of the site. Along the centre of each sector is a spine of public open spaces which contain the schools and neighbourhood mosque. The belt of sand dunes across the middle of the site has been preserved for ecological balance.



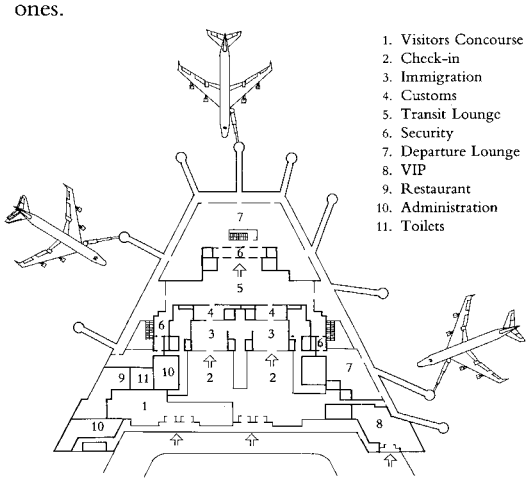
1977

PALAYAM SHOPPING CENTRE , 1977, Trivandrum. Designed for the Trivandrum Development Authority.
A large shopping-cum-office complex in the centre of the city, involving both urban renewal and new construction.

GARMENT FACTORY, 1977–81, Madras. Designed for the All-India Handicrafts and Handlooms Exports Corporation.
This project houses under one roof, three independent garment manufacturing units together with the central overall management provided by the H.H.E.C. itself. This involves a complex flow of materials and personnel, display and sales areas, sample libraries and administrative departments, all interlinked with the production units.

1978

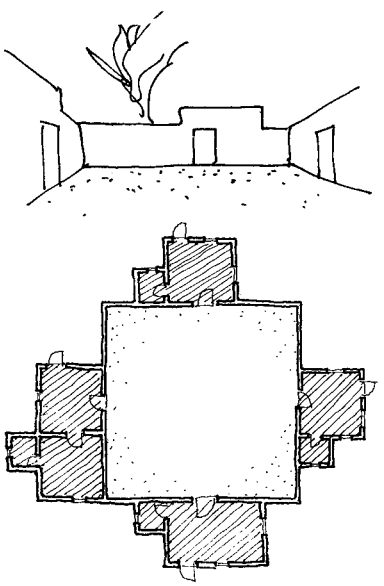
INTERNATIONAL AIRPORT, 1978–86, Delhi. Designed for the International Airports Authority of India. (*Associate Architect: Jasbir Sawhney*)
This new international airport replaces the airport at Delhi. The first module will process the 3.3 million passengers expected by the year 1990. The shape adopted for the building is a triangle, truncated at the apex. This gives a greater periphery along the apron, thus allowing more aircraft to be parked in-contact. There are two main levels — the upper one for departing passengers and the lower one for arriving ones.



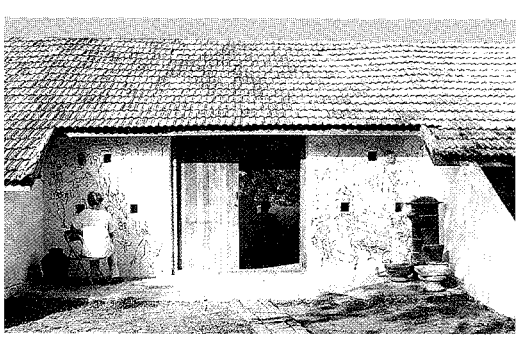
Plan

MCF OFFICE (Unbuilt), 1978, Mangalore. Designed for Mangalore Chemical and Fertilizers Ltd.
A small office building overlooking the Jeppoo river.

KAPUR THINK TANK, (Unbuilt), 1978, Delhi. Designed for Mr. Jagdish Kapur.
A small guest house on a farm outside Delhi, to accommodate participants of an annual Think Tank focussing on India's future. (How does one live with all the knowledge of 20th century man, but in consonance with India's per capita resources?)
The main arena is a square courtyard made of earth, defined by a mud wall — with the rooms for each participant as appendages on the other side of the wall. Every morning, each participant emerges from his doorway to meet in the centre of the courtyard for the deliberations.

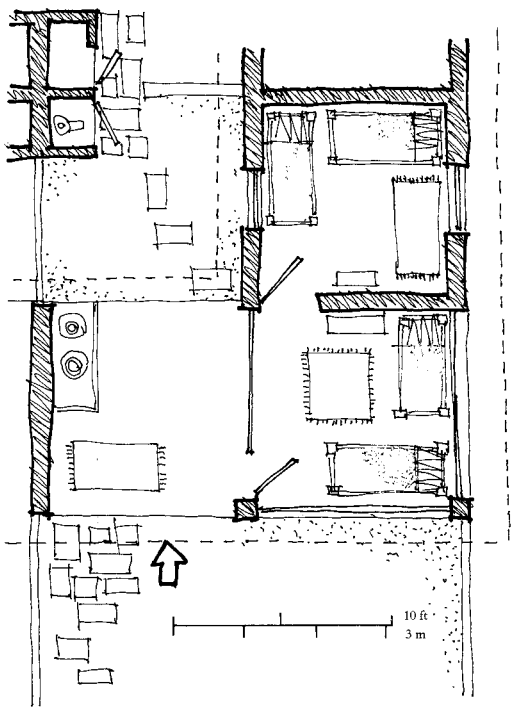

Plan

VILLAGE HEALTH CLINIC, 1978–79, Alibag. Designed for the Watsa Foundation.
A modest tiled-roof structure to provide free medical services for the villagers of Alibag, just south of Bombay.



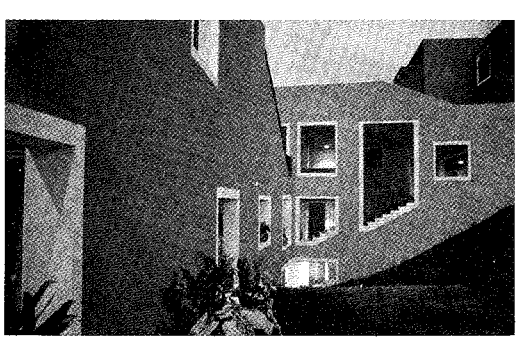
DCM HOTEL (Unbuilt), 1978–79, Delhi. Designed for the Delhi Cloth Mills.
A low-rise 300 room luxury hotel designed around a pleasure garden.

CYCLONE-VICTIMS HOUSING, 1978–79, Guntur Andhra Pradesh. Designed for the Government of Andhra Pradesh.
Housing for homeless families after the 1978 cyclone. The houses are incremental, the government providing only a single cyclone-proof room of stone walls, with the inhabitants adding on extra rooms in mud, bamboo and country tile.



Plan

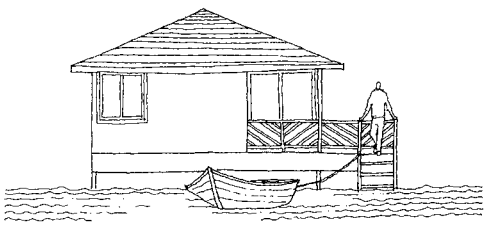
CIDADE DE GOA, 1978–82, Dona Paula, Goa. Designed for Fomento Hotels and Resorts Pvt. Ltd.
A 100-room resort on a beach near Panaji, which seeks (among other things) to create metaphors of Goa's history. (See pages 96–103.)

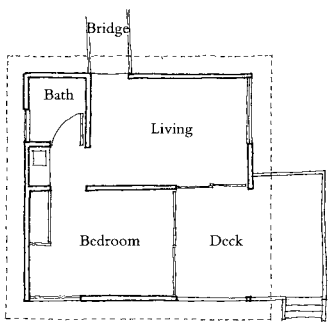


MALABAR CEMENTS TOWNSHIP, 1978–82, Kerala. Designed for Malabar Cements Ltd.
A company-town of 400 housing units on a wooded site at Walayar lake, in a pattern which encourages secondary income generation for each family. (See pages 66–69.)

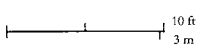
1979

KUMARAKAM RESORT, (Unbuilt), 1979, Kumarakam, Kerala. Designed for the Kerala Tourism Development Corporation.
The site is a hundred acre island, just south of Cochin. Originally a coconut plantation it was to be developed as a major tourist centre with facilities for boat trips through the tranquil scenery of the famous backwaters of Kerala.





Plan

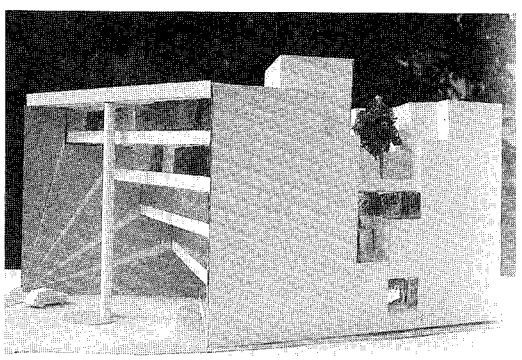


BAY ISLAND HOTEL, 1979–82, Port Blair, Andaman Island. Designed for Bay Island Hotels Pvt. Ltd.
A resort hotel on the side of a hill overlooking the entrance to Port Blair harbour. (See pages 88–95.)

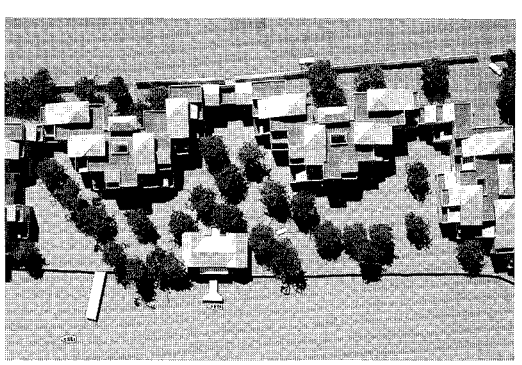
TAIF CITY CENTRE, (Unbuilt), 1979, Taif, Saudi Arabia. Designed for the Saudi Real Estate Company.
This assignment involved preparing urban-form studies for the new city centre at Taif, which is to consist of 200,000 square metres of office, residential, shopping and parking facilities. At the lower two levels is located a *souk* for shoppers; the upper terraces are used as community spaces by the residential units which ring the project; the whole composition forming a continuous pedestrian spine in a classic Islamic tradition.

1980

PALM AVENUE OFFICES, (Unbuilt), 1980, Calcutta. Designed for Mr. Abhijit Sen.
A small office building on a very restricted site. The front profile of the building rotates downward so as to provide turning radius for the driveway.

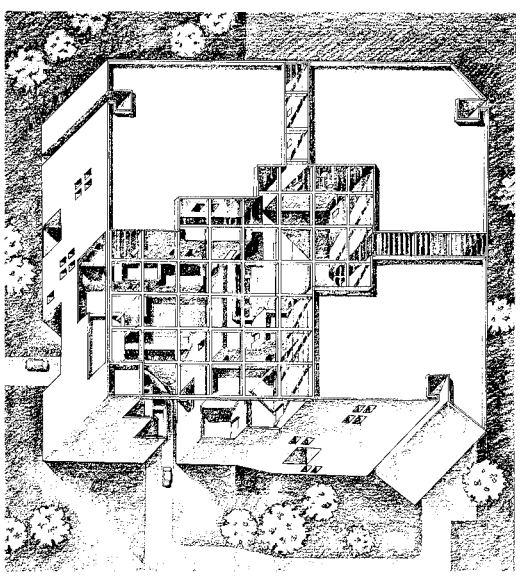


CALVETTY GROUP HOUSING, (Unbuilt), 1980, Cochin. Designed for Forbes Cambell Ltd. (*Associate Architects: S. Gopakumar*)
Cluster housing of 85 units on a beautiful site overlooking the entrance to Cochin harbour.

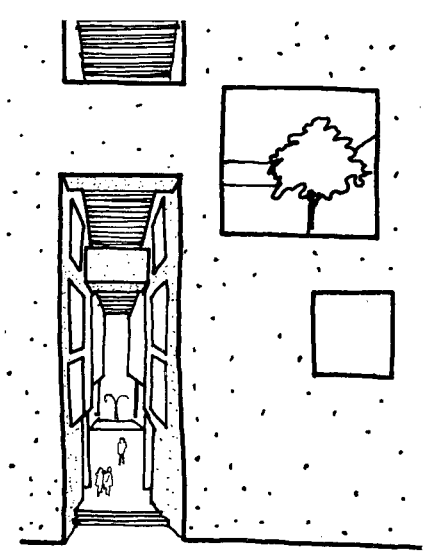


MSEB OFFICES, 1980–, Shillong. Designed for the Meghalaya State Electricity Board.
A small complex of offices under construction on the side of a gently sloping hill.

MPSC OFFICES, (Unbuilt), 1980, Bhopal. Designed for the Madhya Pradesh State Corporation. (*Associate Architect: Hema Sankalia*)
A further development of some of the architectural concepts initiated in the ECIL offices in Hyderabad, this complex is for a similar hot-dry climate. It is designed to accommodate twelve independent State Government Corporation in four separate buildings which architecturally form a single mass, focussing round a courtyard, with a fountain at its centre. This courtyard is covered by a pergola at roof level, which not only protects the internal facades from the sun, but also ties the complex together visually. Much of the lighting of the office spaces is from windows overlooking this central space; the external surfaces are either blank masonry, or double-walls with deep-set windows. The six-storey high blocks each have their own vertical circulation; at various points on the upper levels they are interconnected by bridges. The driveway swings into the complex, passing under the overhead bridges — a classic pattern found in historic sectors of Bhopal city.

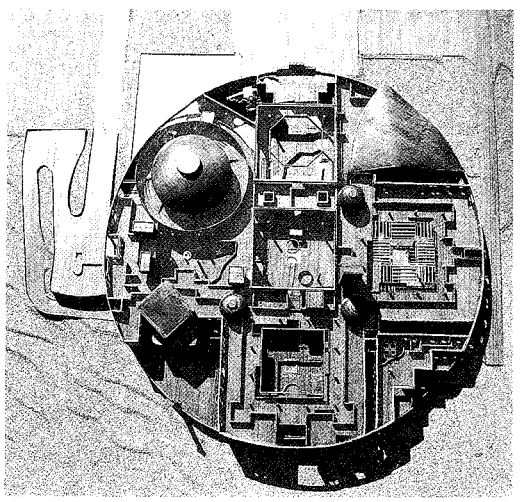


Axonometric



BARAPANI RESORT DEVELOPMENT 1980, Barapani, Meghalaya. Designed for the Department of Tourism, Government of Meghalaya.
A development consisting of 50 tourist cottages and a restaurant on Lake Umiam.

VIDHAN BHAVAN, 1980, Bhopal. Designed for the Government of Madhya Pradesh. (*Associate Architect: Hema Sankalia.*)
The new State Assembly for the Government of Madhya Pradesh inspired and organised as a *mandala*.
(See pages 134–139.)



BD CENTRE, 1980, Madras. Designed for Indian Express Newspapers Pvt. Ltd.
Shopping, housing and offices on a 10 hectare site in the centre of Madras. The new development is around the edges of the site, leaving the centre to form a new city plaza around the historic old building which used to house the Madras Club.

COURTYARD HOUSING (Unbuilt), 1980, Abu Dhabi. Designed for Dodsal.
Development of a prototype for prefabricated housing units.

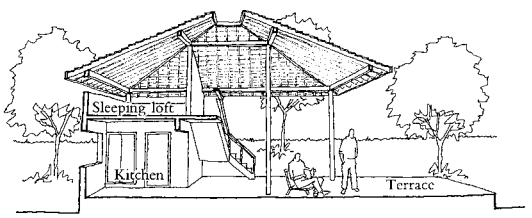
1981

ONGC TOWNSHIP MASTER PLAN, 1981–82, New Bombay. Designed for the Oil and Natural Gas Commission.
The site planning and architectural control drawings for 500 staff housing units develops a hierarchy of spaces from individual units to the community *maidan*.

COMPUTER CENTRE, (Unbuilt), 1981, Singapore. Designed for Tata Elxsi Pte. Ltd. (*Associate Architects: Team 3*)
Assembly facilities at the lower levels, with work space for the software programmers on the terrace levels.

CHOWGULE HOUSE, (Unbuilt), 1981, Goa. Designed for Sudha and Ashok Chowgule.
A gradually ascending spiral of rooms around a central courtyard — the whole forming an amphitheatre for music recitals.

BEACH HOUSES, (Unbuilt), 1981, Mandwa. Designed for Mr. G. Khandwala.
10 houses on the side of a hill, each a variation of the classic — and simple — *chatri* form.

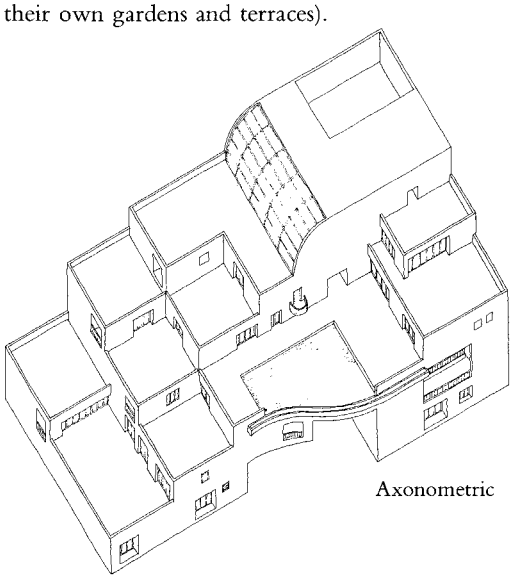


1982

BEACH HOUSES, 1982, Verem, Goa. Designed for Alcon Real Estate Company.
A linear cluster of 32 houses on a site along the Mandovi river.

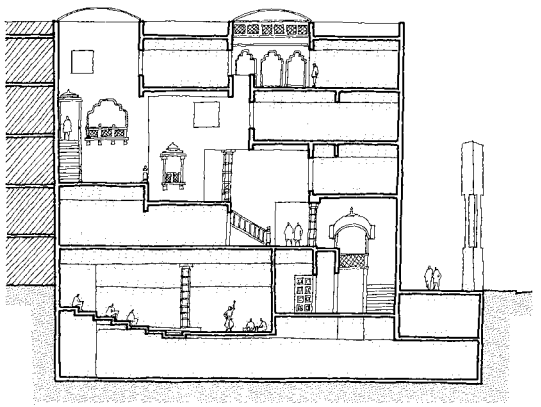
BUDDHA POORNIMA WATERFRONT, 1982, Hyderabad. Designed for the Hyderabad Urban Development Authority.
A comprehensive development plan for Hussain Sagar Lake in the centre of Hyderabad city, consisting of large public gardens, educational institutes and a new bazaar.

SHAH HOUSE, 1982, Juhu, Bombay. Designed for Mr. & Mrs. Rajesh Shah. (*Associate Architect: J. Thanawalla*)
Five separate dwelling units, individually designed for the members of a large joint family, (each with their own gardens and terraces).



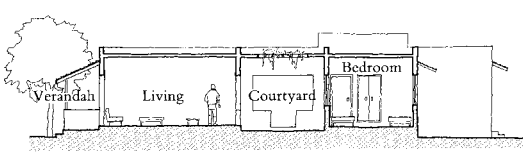
Axonometric

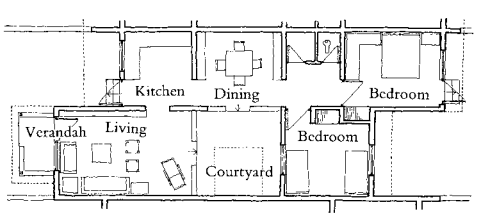
BVB CENTRE, (Unbuilt), 1982, New York. Designed for the Bharatiya Vidya Bhavan.
Facilities for language dance and music schools clustered around an internal pedestrian street ascending diagonally across the building towards two corner mirrors which reflect it all back.



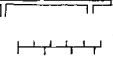
Section

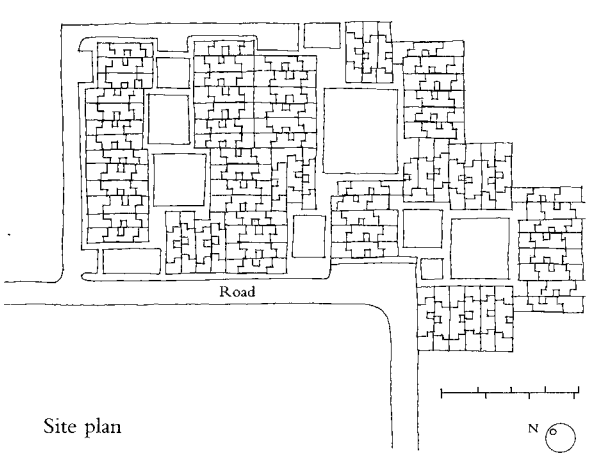
L & T TOWNSHIP, 1982, Awarpur. Designed for Larsen & Toubro.
New dwelling units, club house, schools and administration building added onto an existing township.





Section and plan



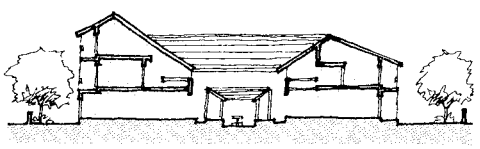


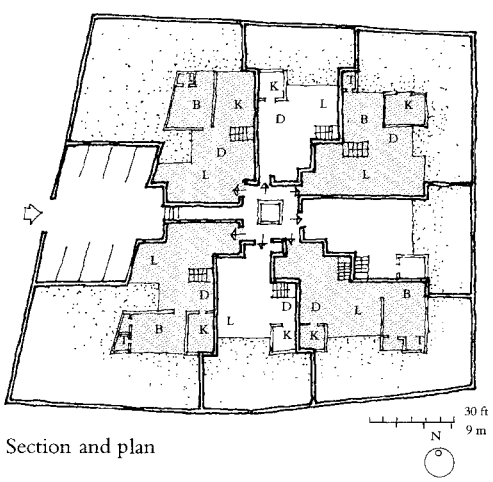
Site plan

1983

KILACHAND HOUSE, (Unbuilt), 1983, Bombay. Designed for Nilima and Tamil Kilachand.
This large house for an extended family (including an independent unit for the grandparents), provides an unobstrusive low-key context for a unique collection of old wooden doors, windows and ceilings.

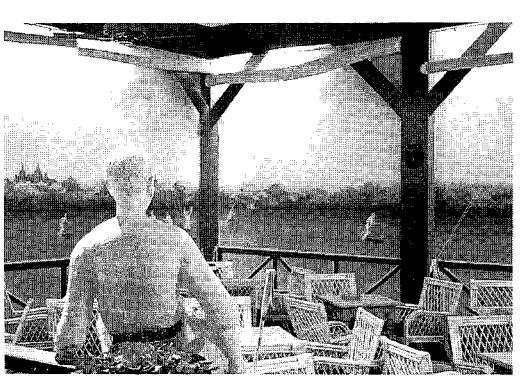
CUNNINGHAM CRESENT, (Unbuilt), 1983, Bangalore. Designed for a group of friends.
On the site (measuring 1,900 square metres in a quiet residential area) seven houses radiate fan-wise from the entry courtyard. The precise visual dimensions of each of the ground and one storey units is difficult to comprehend — because of the complexity of the spatial configuration.





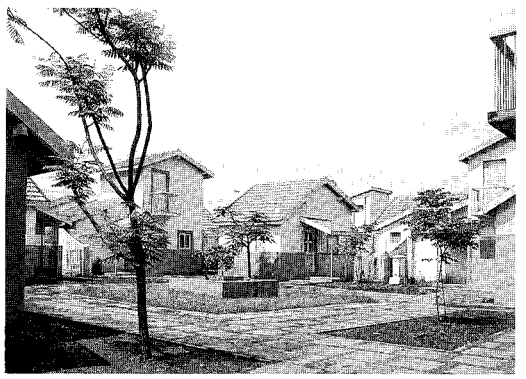
Section and plan

GYMKHANA BAR, 1983, Bombay. Designed for Bombay Gymkhana Ltd.
Remodelling of an existing room to re-create a historic moment in Indian sports: the 14 sixers by C.K. Nayudu in the first India-England cricket match held in 1932.



HOUSING SCHEME, 1982, Indore. Designed for the Indore Development Authority.
A development consisting of 290 units of ten different types, grouped in clusters, around a central *maidan*.

BELAPUR LOW-INCOME HOUSING, 1983–85, Belapur, New Bombay. Designed for CIDCO (City and Industrial Corporation).
A low-rise, high-density housing sector in New Bombay. (See pages 70–75.)



1984

ACC TOWNSHIP, 1984, Wadi. Designed for Associated Cement Companies Ltd.
400 units of two different types for housing company staff, added onto an existing township. (See pages 76–77.)

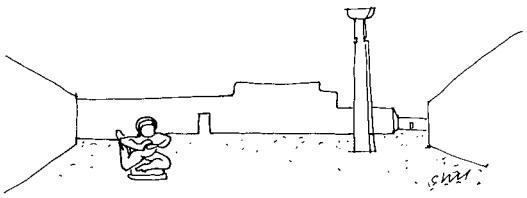
PRINTING PRESS AND ADMINISTRATIVE OFFICES, 1984, Nerul, New Bombay. Designed for Tata Press Ltd.
A folded-plate RCC structure houses a large printing press, fronted by an administrative block (containing offices on the lower level, and staff facilities and guest suites on the upper one).

1985

TELEGU VIGNANA PEETAM, 1985, Hyderabad. Designed for the Government of Andhra Pradesh. Schools for music and drama in classic Telegu tradition, together with a performing arts centre.

PERMANENT MISSION OF INDIA CHANCERY & RESIDENCES, 1985, New York. Designed for the Government of India. (*Associate Architect: Bond Ryder James*)
Offices and residential accommodation for the Permanent Mission of India to the United Nations. The site is a curious one running between 43rd and 44th streets, (just near second avenue), it is 200 feet deep 41 feet wide at one end and 25 feet wide at the other.

ARCHAEOLOGY MUSEUM, 1985, Bhopal. Designed for the Government of Madhya Pradesh.
An important collection of sculpture and architecture, housed partly indoors and partly in open-to-sky courtyards. (See pages 140–141.)



BAGALKOT TOWNSHIP, 1985, Bagalkot, Karnataka. Designed for the Government of Karnataka. (*Socio-economic studies: Indian Institute of Management & Institute of Social and Economic Change; Structural & Mechanical Engineering: BTDA.*)
A township for the 50,000 persons who will be displaced by the rising waters of the Ghataprabha river.

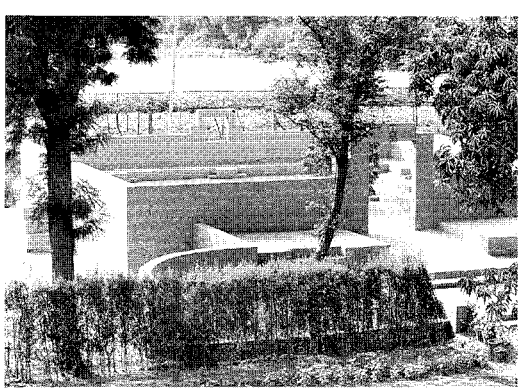
CORREA HOUSE, 1985, Bangalore.
A residence and studio of ground and one upper floor, around a central courtyard.

1986

HUDCO HOUSING, 1986.
Sited at Jodhpur and designed for the Rajasthan Housing Board 176 houses in four income categories attached to an existing layout. (See pages 78–79.)

JAWAHAR KALA KENDRA, 1986, Jaipur. Designed for the Government of Rajastan.
A version of the nine square mandala, which was the original basis of the historic city of Jaipur.

SURYA KHAN, 1986, Delhi
A further development of the Kapur Think Tank (see page 156) built out of brick with mud plaster and based on the square mandala plan. In the centre a Sri Yantra symbolises the axis mundi — around which sit the main speakers. The observers gather on the cascading steps on the four sides in a modern reincarnation of the classic Kund.



Biography

Charles Mark Correa, born in Secunderabad, India, on the 1st of September 1930.
Married to Monika Sequeira in 1961;
has two children, Chinu and Nakul. Lives in Bombay, India.

Education
1946–1948
Inter-Science, St. Xavier's College, University of Bombay.

1949–1953
B.Arch, University of Michigan.

1953–1955
M.Arch, Massachusetts Institute of Technology.

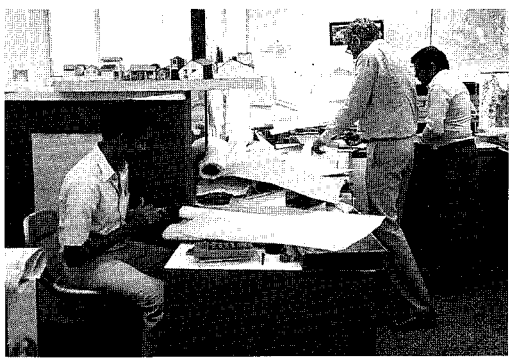
Professional Experience
1958–to date
In private practice.

1964–1965
Prepared alternate Master Plan (with Pravina Mehta and Shirish Patel) proposing twin city across the harbour from Bombay.

1969–1971
Invited by the Government of Peru and the United Nations (along with twelve other international architects) to design a low-cost housing project in Lima.

1971–1974
Chief Architect to CIDCO (City and Industrial Development Corporation of Maharashtra Ltd.), established by Government of Maharashtra for designing and developing New Bombay.

1975–1976
Consultant to U.N. Secretary-General for HABITAT.
Member of Barbara Ward's "Vancouver Symposium", United Nations Conference on Human Settlements, Vancouver, Canada (June 1976).



1975–to date
Board of Directors, CIDCO (New Bombay).

1975–1978
Consulting Architect, Government of Karnataka.

1975–1983
Chairman, Housing Urban Renewal & Ecology Board (Bombay Metropolitan Regional Development Authority).

1982–1983
Consultant to U.N. University, Tokyo, Japan.

1985–to date
Chairman, Dharavi Planning Commission, Government of Maharashtra.

1985–to date
Chairman, National Commission on Urbanisation, Government of India.

Teaching
Fall 1962
Albert Bemis Professor, Department of Architecture, MIT.

May 1974
Bannister Fletcher Professor, University of London.

Fall 1974
Visiting Critic, Graduate School of Design, Harvard, Massachusetts.

July–October 1976
Visiting Critic, J.J. School of Architecture, University of Bombay.

Fall 1979
Arthur Davis Visiting Professor, School of Architecture, Tulane University, New Orleans.

Spring 1981
Visiting Critic, Department of Architecture, MIT, Cambridge, Massachusetts.

Spring 1982
Visiting Critic, School of Architecture, University of Pennsylvania, Philadelphia.

Spring 1984
Visiting Critic, Columbia University, New York.

1985
Nehru Professor, Cambridge University, U.K.

Awards and Honours
1961
First Prize for Low-income housing in an all-India competition held by the Gujarat Housing Board.

1972
Padma Shri, by the President of India.

1974
Nominated by TIME magazine as one of 150 persons round the world in cover story on New Leadership.

1979
Honorary Fellow, American Institute of Architects.

1980
Honorary Doctorate, University of Michigan.

1984
Royal Gold Medal for Architecture, Royal Institute of British Architects.

1984
Sir Robert Matthew Prize, International Union of Architects.

1985
Member, The French Academy of Architecture.

1986
Chicago Architecture Award, American Institute of Architects.

Professional Affiliations
1964
Fellow, Indian Institute of Architects.

1974
Council of Architecture, India

1978
Board of Architects, Singapore

1979
Honorary Fellow, American Institute of Architects.

Board Membership, Committees, Juries
1975–1978
Member, Bangalore Urban Arts Commission.

1975–1984
Western Board, Reserve Bank of India.

1976
Jury Member, Pahalavi National Library Competition, Iran.

1977–to date
Member, Steering Committee, Aga Khan Award for Architecture.

1980–to date
Member, Technical Advisory Committee for the Urban Conservation Study of Hyderabad, Hyderabad Urban Development Authority.

1981–to date
Member, Board of Advisors, *MIMAR: Architecture in Development* and Director of Concept Media Pte Ltd, Singapore.

1982–to date
International Advisor to International Design Conference at Aspen, Colorado.

1982–to date
Member, Economic and Planning Advisory Council to the Chief Minister, Government of Karnataka.

1983–to date
Founder Member, Indian National Trust for Art and Cultural Heritage.

1984–to date
Member, State Policy and Planning Council for Jammu & Kashmir.

1984–to date
Founder Member, Trust for Urban Design Research Institute, Bombay.

Exhibitions
Work displayed in the following:
1975
Contemporary Architecture in India, USA.

1982
Venice, Biennale, Italy.

1983
Third World Architecture: Search for Identity, Pratt Institute, New York, USA.

1984
RIBA, London, U.K.

1984
A Celebration of Architecture, Cumbria, U.K.

1984
British Council, India.

1985
Festival of India, Paris, France.

Radio/Television
Interviews In:
March 1972
ABC TV "New Bombay" by Peter Jennings.

June 1976
PBS TV "Vancouver Symposium" by Andrew Stern.

22 June 1983
BBC Radio 3 "Sun and Shadow" by Stephen Games.

October 1983
BBC Radio 3 "Skyscraper".

October 1984
Doordarshan "Open-to-Sky Space" by Anil Dharkar.

25 March 1986
Doordarshan "Beyond Tomorrow: Urbanisation" by R.K. Mishra.

Film
Director, Animator, Photographer and Scriptwriter for "*You and Your Neighbourhood*", M.I.T., 1955.

Director and Scriptwriter for a documentary *City on the Water* Film Division, Government of India, 1976.

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Achwal, M.B. "New Building" and "Low-Cost Housing" *Architectural Review*, London, December 1971, pp. 349, 352–353, 365, 369.

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"Architectura — Quale Futuro" *Casabella* — 474/475, Milan, December 1981, p. 91.

"Asian Architecture" *Asiaweek*, Hong Kong, 3 September 1982, Cover story on pp. 26–38.

Bailhache, Pompon, "Un Appartement à Bombay" *La Maison De Marie-Claire*, Paris, March 1970, pp. 88–89.

Bakshi, Ranji, "New Bombay — A Dream takes Shape" *Bombay Magazine*, Bombay, 22 August 1980.

Baxi, S. "Crafts Museum", *Museum*, London 1979, pp. 374–377.

Blake, Peter, "Concrete" *Architectural Forum*, New York, September 1962, p. 78.

—— , "Defeating the Climate" *Sunday Telegraph Magazine*, London, 28 September 1973, pp. 82–88.

Bond, Robert, "The Third World: It's not what they want, it's what they need" *Surveyor*, London, 31 July 1980, pp. 14–15.

Brawne, Michael, "Object on View" *Architectural Review*, London, November 1959, pp. 246.

—— , "Correa Prospects :RIBA Annual Discourse" *Architects Journal*, London, 23 January 1985.

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Burney, Jan, "A Passage to India" *Building Design*, London, 18 January 1985.

"Cama Hotel, Ahmedabad" *Design*, Delhi, September 1960, cover pp. 32–35.

Carlson, Jennifer, "A Sealed Box" — An Open Mind" *Michigan Alumnus*, Michigan University, September 1984.

"Charles Correa: Self-Help City" *GSD News*, Cambridge, Harvard Graduate School of Design, November 1974.

"Cidade de Goa" *Inside Outside*, Bombay, October-November 1982, Cover pp, 14–21.

"Cidade de Goa" *A+U*, Tokyo, June 1984, pp. 100–107.

Cliff, Ursula, "Nine men who helped to shape cities" *Design & Environment*, New York, Spring 1976, pp. 18–35.

"Climate Control" *Architectural Design*, London, August 1969, pp. 448–451.

"Contemporary Asian Architecture" *Process Architecture* — 20, Tokyo, November 1980, pp. 94–118.

"Correa and Kanvinde" *Architectural Review*, London, August 1972, p. 123.

Davey, Peter, "Correa Courts" *Architectural Review*, London, October 1985, pp. 32–35.

De Souza, Eunice, "Low Income Housing" (interview) *Times of India*, Delhi, May 1969.

Donat, John, (editor) "Correa's Work", in *World Architecture*, volume 3, London, Studio Vista, 1966, pp. 24–33.

"Experience Indienne" *Techniques & Architecture*, Paris, December 1976, pp. 124–129.

Games, Stephen, "The Spaces which lie Beyond" *The Listener*, London, 23 June 1983.

"Gandhi Smarak Sangrahalaya" *Indian Institute of Architects Journal*, April–June 1963, pp. 26–38.

Gardiner, Stephen, "Medal for a Man with Faith" *Observer*, London, 3 June 1984.

Gartland, Annette, "Charles Correa: Housing the Third World" *Building Design*, London, 6 August 1982.

Gogate, Madhukar, "Interview with Charles Correa" *Building Practice*, India, April 1972.

"Gun House" *Architectural Review*, London, July 1965, pp. 59–60.

Homila, Paula, "Charles Correa, Jyvaskylan Intilaisvieras — Koyhan maan Modernisti" *Uusi suomi*, 15 August 1985.

"Housing at Trombay" *Design*, Bombay, August 1958, pp. 8–9.

"Indian Pavilion", *Architectural Forum*, New York, January 1961, p. 132.

"Indian Revisions", *Architectural Review*, London, April 1964, pp. 235–236.

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"Kanchanjunga Apartments" *Architect*, Melbourne, December 1983, pp. 12–13.

Khalid, Ruslan, "Conversation with Charles Correa" *Majallah Akitek*, Kuala Lumpur, March 1985.

Kultermann, Udo, "Charles Correa" in *Arkitekten der Dritten Welt*, Köln, Dumont Buchverlag, 1980, pp. 114–119.

Kultermann, Udo, "Thackeray and Correa: Vashi New Town, Bombay" in *Architecture in the Seventies*, London, Architectural Press, 1980, pp. 120–122.

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Publications by Charles Correa
(listed chronologically)

"Architectural Expression" Lalit Kala Academy, Delhi, Seminar on Architecture, 1959, pp. 48–50.

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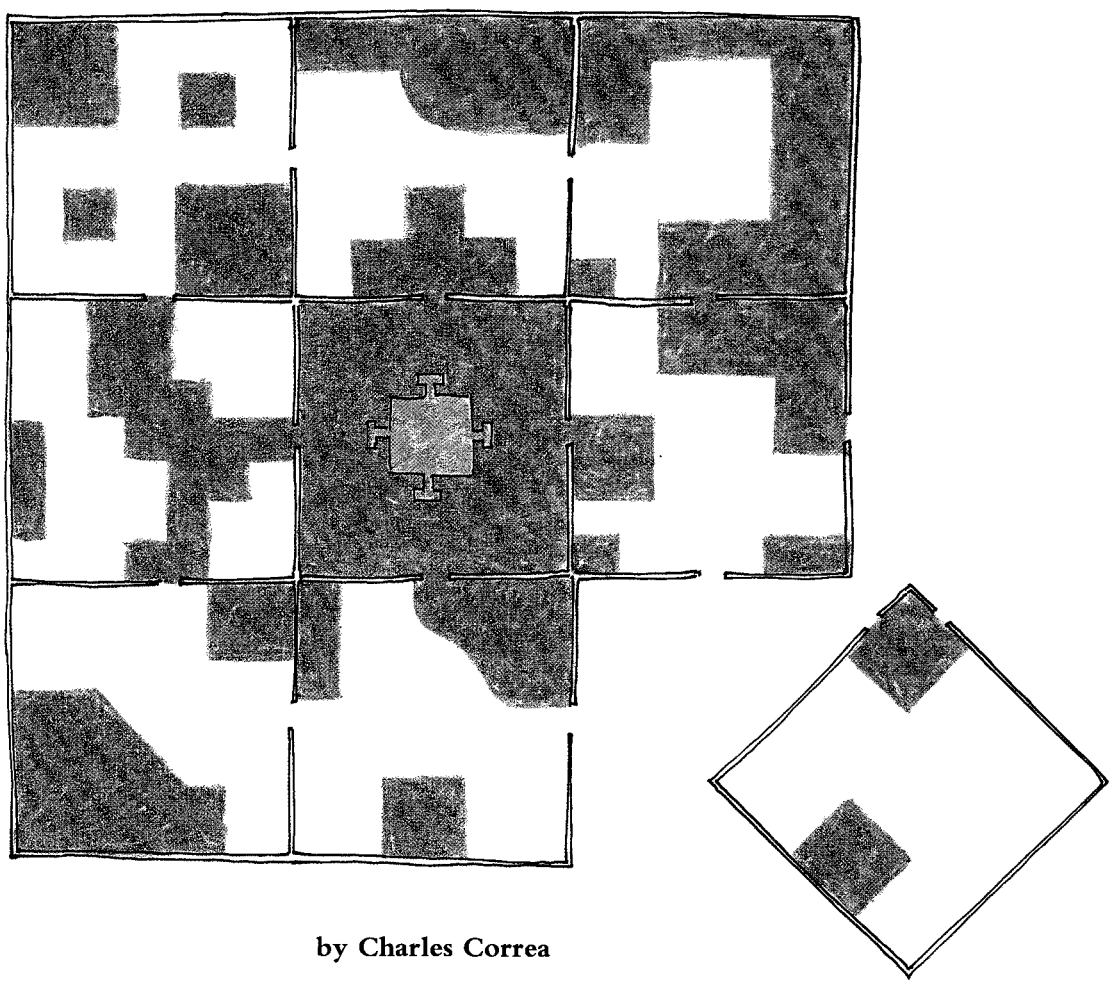
TRANSFERS AND TRANSFORMATIONS



by Charles Correa

Transfers and Transformations

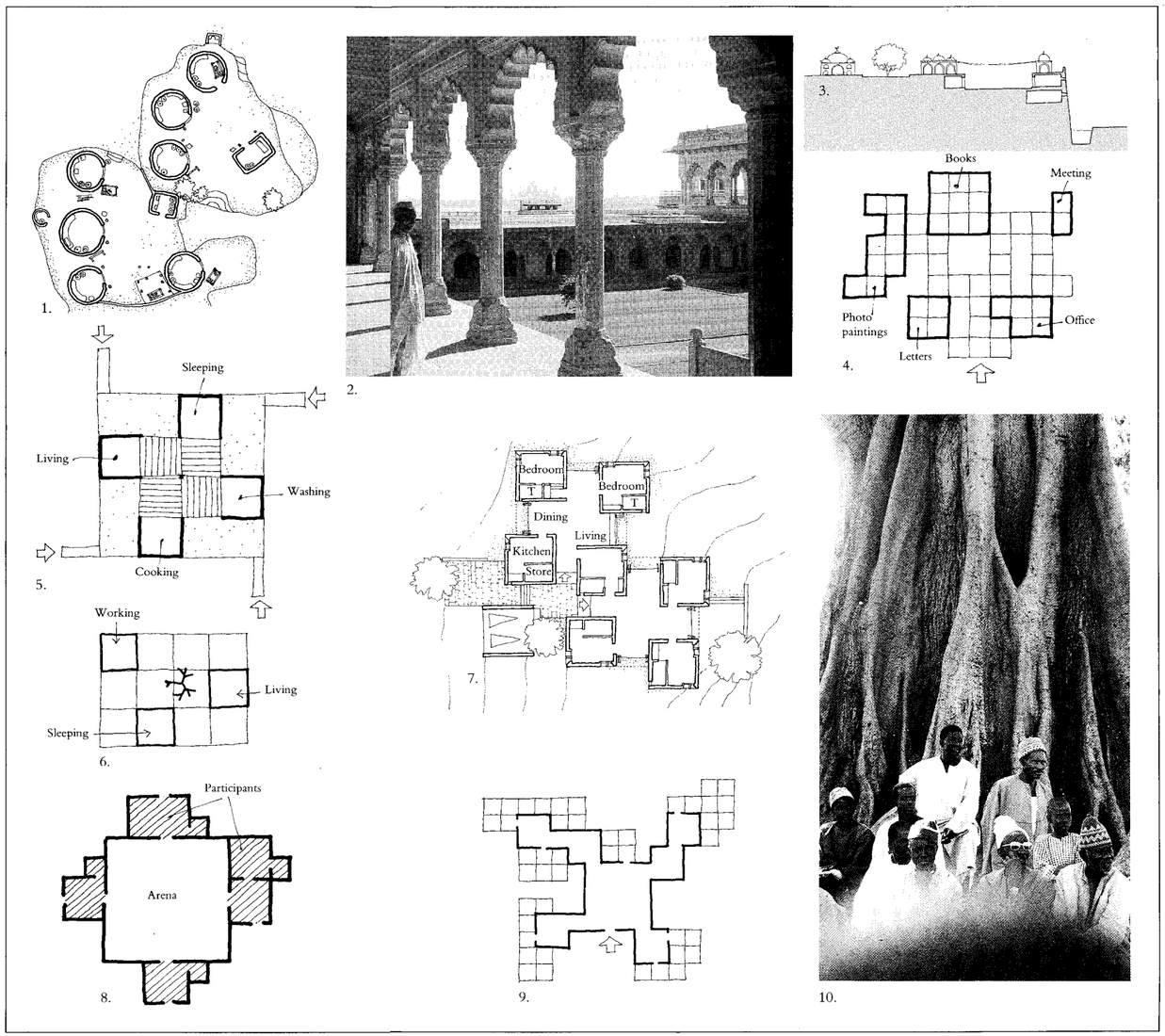
Disaggregating architectural form into a series of separate but interdependent volumes is quite common in India. For instance, the houses in some villages of Rajasthan (fig. 1) consist of a series of circular huts focussing on a central courtyard. Each hut has a specialised function: one for visitors, another for storing grain, a third for sleeping, and so forth. One moves from one to the other, depending on the time of day, and the activity one is engaged in — a kind of nomadic pattern of living, both stylish and appealing.

From the opposite end of the economic scale in the great *Lal Kilas* (Red Forts), built by the Mughal Emperors in Agra and Delhi, the lower levels were used for defence, stores, etc.; but at the top, on a terrace, was constructed an elegant pattern of free-standing pavilions, placed in immaculate gardens, inlaid with fountains, canals and running water (fig. 2). These pavilions were differentiated as to use, such as the *Diwan-I-Am* for receiving visitors, the *Moti Masjid* for prayers and the *hammams* for bathing. But how could such a disaggregated pattern be made viable in the cold of the northern Indian winters and the annihilating heat of its summers? The answer lies in the sunken courtyards, which give access to a lower level of rooms. In the early morning of the summer months, a velvet *shamiana* (canopy) was stretched over the rim of the courtyards trapping the cold overnight air in the lower level of rooms. This is where the Mughal Emperor spent his day (fig. 3). In the evening, the *shamiana* was removed, and the Emperor and his court came out in the gardens and pavilions of the terrace level. In the cold but sunny winters, this pattern was reversed: the terrace gardens being used during the day, and the lower level of rooms at night.

The result was a brilliant re-interpretation of the desert tents of Central Asia (the Mughal homeland) generating a life-style as elegantly royal as Versailles, but with true finesse, on the scale of a tennis court rather than a parking lot. It is a concept that addresses a number of contemporary issues such as flexibility and incrementality — and over the years I have tried to paraphrase it in several projects. One of the first was the Gandhi Smarak Sangrahalaya (1958–63) at the Sabarmati Ashram in Ahmedabad. Here the museum and research centre is disaggregated into a series of separate spaces: one for books, another for photographs, a third for letters, and so forth (fig. 4). Not only does this allow for future growth but it generates movement patterns between these areas that emphasise the horizontal plane — making for an embiance of tranquility and meditation.

The Sen farmhouse (1972, unbuilt) outside Calcutta (fig. 5) was designed as four caves — for living, sleeping, cooking and washing — placed around a pergola-covered courtyard. At different times of the day, this courtyard could be used in conjunction with any particular cave, depending on the activity. The same principle (fig. 6) also generated the Patwardhan houses (1967–69) in Poona, where the sleeping and cooking functions are housed in square masonry boxes, grouped in a pattern which creates breeze-ways for the living areas (fig. 7).

The Kapur Guest House (1978, unbuilt), for facilities to house a high-powered think-tank to discuss India's future, brought a further modulation. The main arena is a square courtyard made of earth, defined by a high mud wall (fig. 8). The rooms for each of the participants in the think-tank are appendages on the *other* side of this wall. Each has a door on to the central courtyard in the middle of which the deliberations take place. In form, it is rather like a sock turned inside-out. This idea has been further developed in the Archaeology Museum (1985) at Bhopal where the system of courtyards is first clearly defined by a continuous masonry wall, and then the various facilities are built separately and incrementally on the other side of it (fig. 9). This inside-out sock concept can cope with the constantly fluctuating budgets and time-tables of an economy like India's, since the basic architectural statement — the wall — is itself made in the first instance.



These patterns of disagreggated and free-standing built-form offer crucial advantages in terms of light and air-movement. They are born of the culture of warm climates, where during the day one needs but minimal protection, such as a *chatri* (umbrella). In the early morning and at night, the best place to be is outdoors, under the open sky.

How different this is from the cold climates of Europe and North America, where life must be protected by a sealable weather-resistant box. One is either *inside* this box or *outside* it. The transition from one condition to the other is through a hard, clearly defined, boundary — the front door. Inside and outside co-exist as opposites, in a simplistic duality. (A proposition that found its apotheosis perhaps in the Miesian equation; a steel-and-glass box set in a sea of open space).

In contrast, the complex manifestations of built-form in a warm climate, where between closed-box and open-to-sky there lies a whole continuum of zones, with varying definitions and degrees of protection. One steps out of the box to find oneself in a verandah, from which one moves into a courtyard — and then under a tree, and beyond onto a terrace covered by a bamboo pergola, and then perhaps back into a room and out onto a balcony, and so on. The boundaries between these various zones are not formal and sharply demarcated, but easy and amorphous (fig. 10). Subtle modulations of light, of the quality of ambient air, register each transition on our senses.

Transfers and Transformations

In such a situation people develop totally different attitudes to built-form. So whereas the symbol of education in North America is the little red schoolhouse, in India (as most of Asia) it is the image of the guru sitting under a tree. Not only is this far more sensible than being inside a stuffy box, but it also is far more condusive to enlightenment (fig. 11).

The fact, the great Hindu temples of South India such as those at Madurai, Tanjore and Srirangam (fig. 12), are experienced not just as a collection of *gopurams* and shrines, but as a pedestrian path (a pilgrimage) through the sacred spaces that lie between. This open-to-sky processional movement is of the utmost religious and symbolic significance. It is found throughout the warm regions of the earth, from the sun temples of Mexico (which consist of pyramids and, more importantly, of the sacramental terraces they define), to the temples of Bali (with their ritualistic pathways up the hillside, through knife-edged gateways).

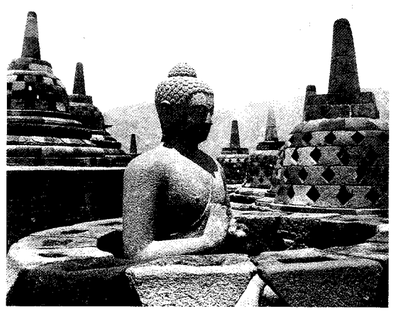
Religious ceremonies in Asia have always emphasised movement through open-to-sky spaces and the quasi-mystical sensations this generates within us. Thus while the cathedrals of Europe are all variations of the closed-box model, the great Islamic mosques in Delhi (fig. 13) and Lahore consist mainly of a large area of open space, surrounded by just enough built-form to make one feel one is "inside" a piece of architecture.

It was in such a context that the Handloom Pavilion (1958) was conceived (fig. 14). Here one enters into a somewhat ambiguous space, neither quite covered nor uncovered, up a series of platforms in an ascending — and then descending — spiral. At some distance above is a "sky" of handloom cloth. Equally familiar is the processional movement generated within the mud walls. So also the Kasturba Gandhi Samadhi (1962–65) in Poona where the memorial consists of a gently descending path (fig. 15) defined by a series of parallel brick walls, on a shifting axis, culminating in the Samadhi itself.

Variations on this theme of pedestrian path, shifting axis and low-key built-form are the Gandhi Darshan, (1969, fig. 16) in Delhi and the India Pavilion (1969 unbuilt, fig. 17) at Osaka, Japan. Here the pathway is extended to also cover the roof surfaces. One enters and goes into, through, over and out of a large puzzle-box — an analogue of the old *bhul bhulaya* (i.e. maze — literally "forgotten place"). Architecturally, the form is relatively low-key — a kind of "non-building", given scale principally by the flights of external stairs (echoing the bathing *ghats* of Benares) and dominated by *Ravanna*, the multi-headed demon seen in giant effigy throughout the country every year during the festival of *Dassera*.

This processional unfolding of spaces, some enclosed, some open-to-sky, was also the basis of both the Salvacao Church (1974–77) in Dadar as well as the Bharat Bhavan (1975–81) in Bhopal. The former (fig. 18) is a speculation as to what church typology might have been if Christianity had stayed in Asia (where it originated) and not been headquarted in the cold climate of Europe. The latter (fig. 19) is a re-interpretation of the old Pleasure Gardens which are still the most popular spot for Indian families in the cool hours of sunset and in the early dawn. In the Crafts Museum (1975 – 85) at Delhi, the open-to-sky pathway becomes a continuous pedestrian spine running through the heart of the museum, a metaphor for the India street, taking the visitor from village to temple to *darbar*.

Open-to-sky space is also of crucial importance in housing where it can make a decisive difference between livable habitat and claustrophobia — the lower the income level, the more important this principle. Even in high-



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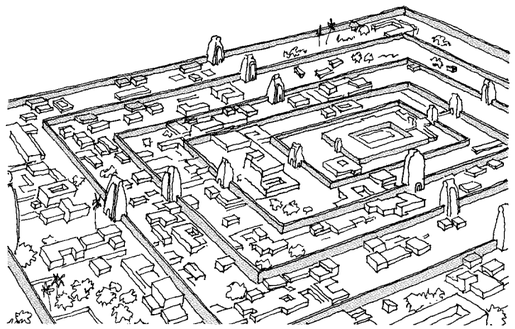

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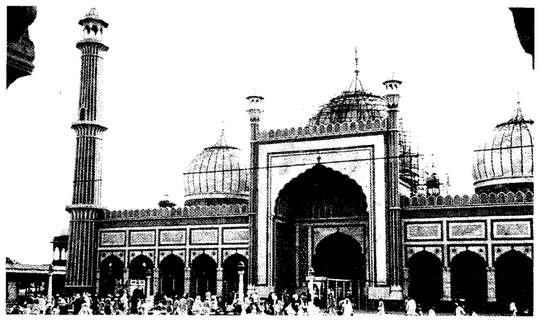

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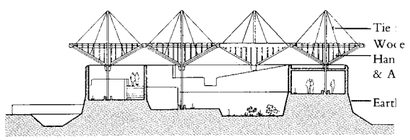

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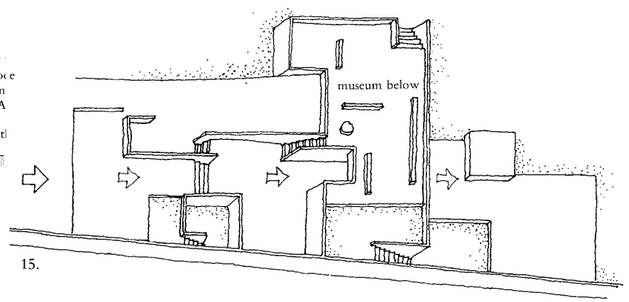

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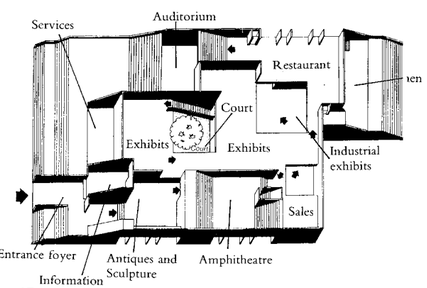

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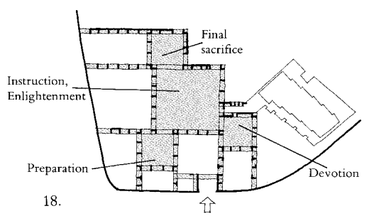

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density housing I have always tried to provide individual terraces and/or gardens for each family as in the Jeevan Bima townships (1969–72, fig. 20) in Borivili and Bangalore (1972–75), as well as the low-income housing (1971–72) for the Gujarat Housing Board at Ahmedabad (fig. 21).

Open-to-sky space not only improves living conditions, but can also have considerable economic value particularly in developing countries like India, where families augment their income by keeping chickens, or a goat (or even a buffalo!). Usually such activities are not encouraged in company-owned townships, but the Malabar Cements Corporation township (1978–82) was an exception. Although the families are housed on two different levels, each has a small piece of land to which it is directly attached, and which it can easily control (fig. 22).

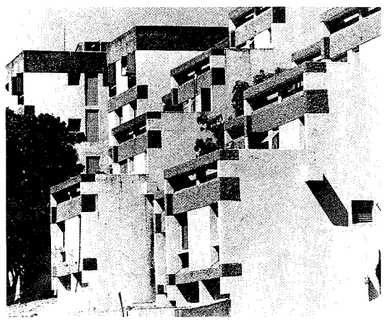
These principles are relevant even to the high-rise buildings of Bombay where the issue is compounded by the hot climate. An east-west orientation catches the prevailing breezes, and also the best views in the city, but it also exposes the building to the blistering sun and the monsoon rains. The old colonial bungalows solved this problem intelligently by locating the main living areas in the centre, protected by a continuous verandah running along the periphery (fig. 23). In section (fig. 24) the sloping roof provides a higher ceiling for these living areas and a lower one for the surrounding verandah. This outer ring provides an additional line for defence where on monsoon days and during the hot afternoons doors and windows can be left open for ventilation.

We have made several attempts to build on this concept. In the Sonmarg Apartments (1962, fig. 25) and later for the Rallis Apartments (1973 unbuilt, fig. 26), a series of verandahs, studies, bathrooms, etc. form a protective zone around the main living areas — with which they can be used in different combinations. For instance, rooms may be expanded or connected and the system can generate plans of considerable spatial complexity, combining ambiguously demarcated boundaries with the dynamics of coupled spaces.

Another variation on the principle of the bungalow, is to turn the verandah (i.e. the buffer zone) into a garden — which can not only protect the living areas from the sun and rain, but will in fact *thrive* on these very elements, since they provide the nourishment plants need (fig. 27). Providing adequate height for the garden (fig. 28) allows it to be used, at appropriate times of the day, as a major living space; and interlocking the units produces the East-West through-ventilation essential in Bombay (fig. 29). We attempted such a typology in two unrealised projects, the Cosmopolis Apartments (1958) in Bombay, and the Boyce Houses (1962, fig. 30) in Poona. Finally came the opportunity to build the scheme: Kanchanjunga (1970–83), a condominium of luxury apartments in Bombay (fig. 31) where the basic interlock of units can form larger apartments by adding an extra half-level of bedrooms and each apartment is protected by a zone of verandahs and bedrooms, and by the large terrace-garden in the corner, which forms the focus of the whole apartment.

Double-height terrace gardens are also the focus for each family in the Tara Group Housing (1975–78), a high-density complex of maisonettes in Delhi. Here the terraces are covered by a light pergola (fig. 32), since sleeping under the open sky is an age-old custom in the hot dry climate of North India.

Architecture in India cannot be concerned just with building for middle and upper income families: throughout the Third World there is a tidal wave of rural migrants pouring into the urban areas. Can the architect with his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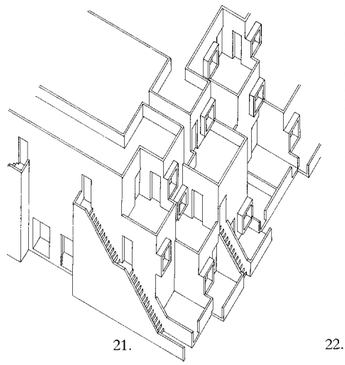
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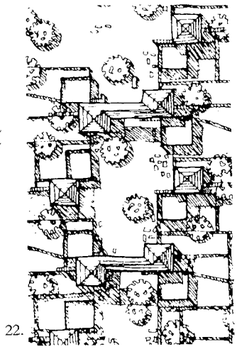
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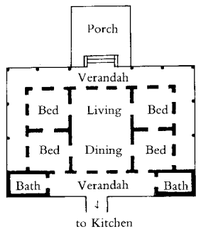

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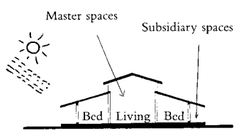

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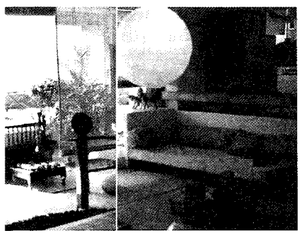
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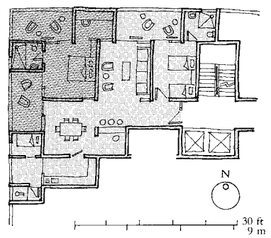

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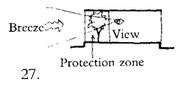

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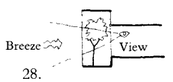

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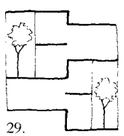
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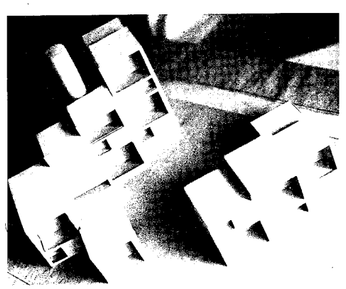
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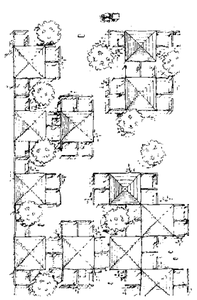
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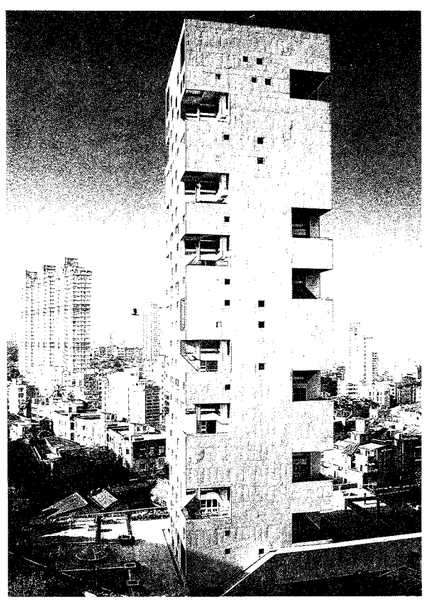
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specialised skills, be of any relevance to them? This will remain the central issue of our profession for the next few decades. To find how, where, and when he can be useful is the only way the architect can stretch the boundaries of his vision beyond the succession of middle and upper income commissions that encapsulate the profession in much of the Third World.

Elsewhere in this book, in my essay on New Bombay, I have tried to outline the role the professional can play, from the restructuring of the city (and hence increasing the supply of urban land) to the layout of the neighbourhoods (where he could help create a hierarchy of spaces analogous to the various systems that have always functioned in indigenous habitat throughout the world). Thus interventions at all stages, from restructuring to site planning, could involve the best a professional has to offer using his topological and visual skills and at the same time would enable people themselves to build according to the existing typology of vernacular construction.

In this approach, open-to-sky space plays a decisive role, not only within the unit itself, but also in the continuum of spaces (from private to public) that makes viable the cramped size of the housing unit itself. An example of this principle would be the Squatter Housing (1973, unbuilt) in Bombay, in which 4 units are clustered together under one roof (fig. 33). Another is the housing (1983–86) at Belapur, New Bombay (fig. 34), where the units for each family are separate and thus incremental. Although the housing here covers a great range of income groups, the plot sizes differ only marginally — thus introducing the principle of Equity, an issue of the greatest political significance. Such patterns can also help us achieve other goals of importance to the Third World, such as people's participation, income generation, disaggregation and pluralism.

Energy is another crucial parameter. In the West, architects have depended more and more on the mechanical engineer to control light and air within the building, but a country like India cannot afford to squander resources on this. This is actually an advantage; for it means that the building itself, through its very form, must create the "control" which the user needs. Such a response necessitates much more than just sun-angles and louvres; it must involve the section, the plan, the shape, in short, the very heart of the building (fig. 35).

Thus the courtyards and waterpools, at the Alhambra (10° cooler than the surrounding countryside) are not just ornaments, but are the wellspring of the architectural concept (fig. 36). To walk into that place (or to cross a desert and enter even the humblest courtyard house) is a pleasure beyond mere photogenic image-making. It is the quality of light and the ambiance of moving air that forms the essence of our experience. Architecture as a mechanism for dealing with the elements (truly, a machine for living!); this is the great challenge and opportunity of our Third World.

In this the old architecture — especially the vernacular — has much to teach us as it always develops a typology of fundamental common sense. For instance, in the hot dry climate of North India, most prevalent is a pattern of narrow units with common party walls. The two long sides have no heat input, all ventilation and light enters from the short ends and via interior courts. I have used variations of this pattern, combining it with a section which modulates temperatures through convection currents. Heated air rises, and moving along the sloping surface of the ceiling, slips out through a vent at the top, thus drawing in new air from the lower level to replace it (fig. 37) as with the Hindustan Lever Pavilion (1961, fig. 38) in Delhi and in the prototype low-income housing unit (1961, fig. 39) for the Gujerat Housing Board in Ahmedabad. A considerably larger example, based on the same principle, was the Ramkrishna House (1962, fig. 40), also located in Ahmedabad.

The idea was further developed for an industrial township (1964, unbuilt) near Kota, Rajasthan. In this arid climate the biggest input of heat is from the roof since it is the largest surface exposed to the sun. The thicker the roof, the longer it takes to heat up — but once this happens, it continues to radiate down into the rooms at night until it finally cools off (fig. 41). A better way to prevent the roof heating up is to minimise the sunlight falling on it and this can be done by interposing a second membrane — preferably slatted, so it is quick to cool (fig. 42). By raising this membrane, the roof can act as a sheltered terrace, usable in the evenings (fig. 43). Furthermore, the profile of the internal volumes can be adjusted (fig. 44) so as to generate the convection currents referred to earlier.

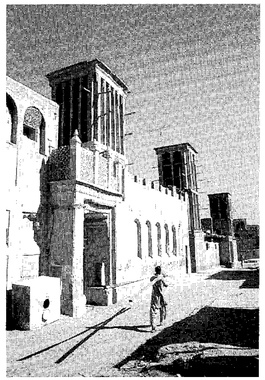
In working on the Kota Township we developed two sections, which may be called the *Summer* Section (fig. 45), and the *Winter* Section (fig. 46). The Summer Section creates a pyramidal interior space closing off the sky; it is to be used in the hot afternoons while the Winter Section is a reverse pyramid opening up to the sky; it is to be used in the cold season, and in the summer evenings. A large private house should provide both these conditions, as in the Parekh House (1966) in Ahmedabad where the Summer Section (fig. 47) is sandwiched between the Winter Section and the service bay, in order to counteract the East-West orientation of the site. In my own house (1967, unbuilt) in Ahmedabad, where the site orientation was North-South, the Winter and Summer Sections were to be placed in a line (fig. 48).

Of course row housing has rigid constraints because of the narrow space confined between the parallel bearing walls. To circumvent this, for the Previ Project (1969–73) in Lima, Peru, we developed a variation on this theme in which row houses which expand to two bays for a portion of their length, thus creating an internal double-height space as a central focus for household activities (fig. 49).

Do these concepts have any relevance to other building-types, for instance, the office building? Earlier attempts to deal with solar protection were really variations on the theme of *brise-soleil* — as with the Administration Offices (1958–60) for Vallabh Vidyanagar University at Anand (fig. 50). We soon discovered that this kind of *brise-soleil*, while providing a powerful visual imagery to the built-form, heats up during the course of the day and actually acts as a huge heat-radiator in the evening. So for the ECIL Office Complex (1965–68) in Hyderabad (fig. 51), I tried to develop a workspace which, through the very nature and pattern of its built-form, would generate a controlled micro-climate.

Gradually a kit-of-parts came into existence: the section to facilitate convection currents, the internal zone of micro-climate, the stepped terraces, the pergola roof. Variations of this kit-of-parts were used in the Karnataka State Electricity Board Building (1973, unbuilt), in Bangalore and the MPSC Office Building (1980) in Bhopal (fig. 52). In the LIC Centre (1975–80) in Delhi (fig. 53) the pergola roof is used both as an umbrella to shade the building, and also as an urban gesture to create an architectural proscenium between Connaught Place and the high-rise towers that lie beyond.

Environmental and cultural conditions in India vary a great deal — from the dry heat of the Punjab (with its Indo-Islamic cultural roots) to the lush tropical vegetation of Tamilnadu and Kerala (the gateway to South-East Asia). The architec-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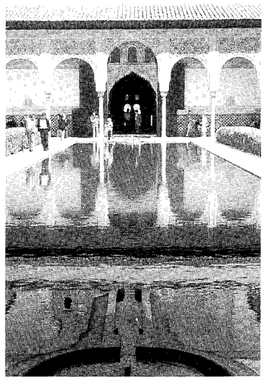
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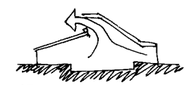
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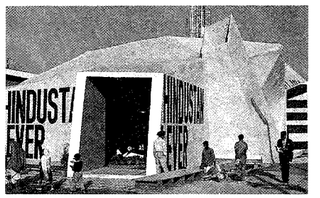

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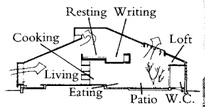

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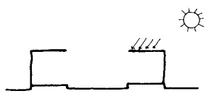
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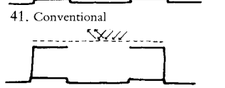
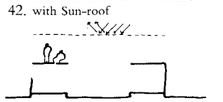
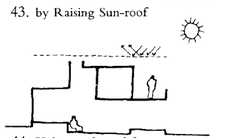
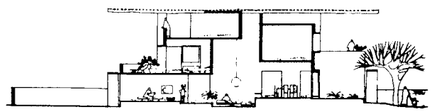

42. with Sun-roof


43. by Raising Sun-roof


44. Volume adjusted for creating convection currents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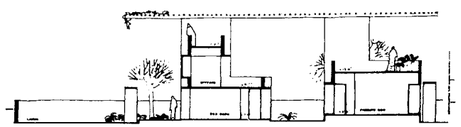
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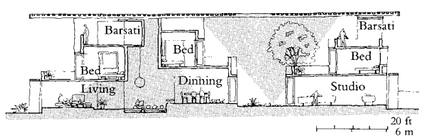

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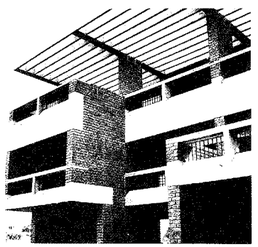
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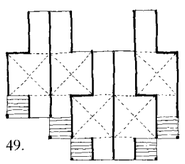
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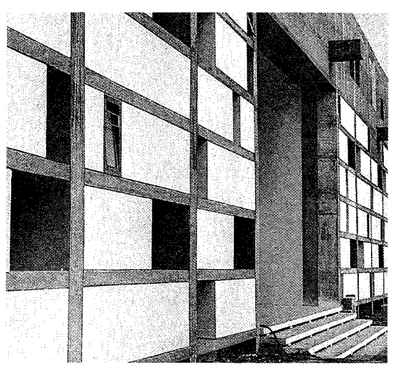
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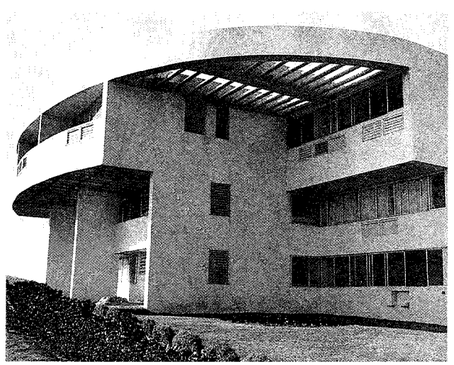
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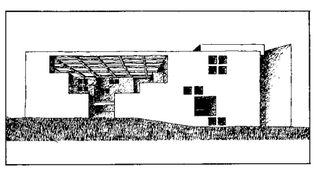
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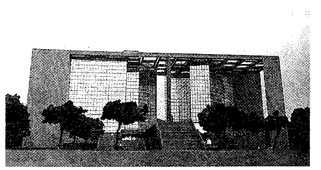

53.

Transfers and Transformations

ture of each of these regions, reflecting these varying conditions, is often wonderfully inventive. For example, one of the pavilions of the Padmanabhapuram Palace, in Trivandrum (at the Southern tip of India), has a remarkable section (fig. 54) where the pyramidal form of the plinth echoes the slope of the tiled roof above. One can imagine a ruler sitting on the top of the pyramid, with his courtiers on descending levels around him — in a marvellous analogue of the prevailing social structure. One does not need any enclosing walls to keep out the sun and rain; and furthermore, when one is within the pavilion, the line of vision is deflected sharply downwards to the grass around (a cool fresh green, which in itself is therapeutic on a hot day).

This principle helped generate the design of the Bay Island Hotel (1979–82) on the Andaman Islands (fig. 55) in the Bay of Bengal.

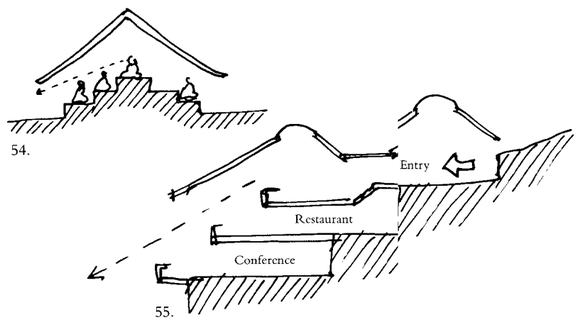
Sloping tiled roofs are part of the indigenous architectural vocabulary of most South-India — and have always found a place in my thinking, from the Sadiq Futehally House (1959, unbuilt) in Bombay and the Mascarenhas House (1964–65) in Bangalore, to the Kovalam Beach Development (1969–74) in Trivandrum, the Watsa Foundation Village Clinic (1978–79) in Alibag, and the L & T Township (1982–) at Awarpur.

More complex and subtle references to local traditions were attempted in the hotel Cidade de Goa (1978–82 , fig. 56) at Dona Paula, as well as the Kala Akademi (1973–83) in Goa. In these projects, elements from the kit-of-parts developed earlier, for instance the pergola roof of the Kala Akademi (fig. 57) are combined with colour and painted form, setting up a dialectic between built-form and visual imagery — a theme continued in the re-creation of the first Test cricket match played in India at the bar (1983) of the Bombay Gymkhana.

Perhaps the most interesting attempts to bring all these various issues together are the Vidhan Bhavan under construction in Bhopal (fig. 58, 59), and the Jawahar Kala Kendra in Jaipur (fig. 60). The first, the State Government Assembly, has a circular plan divided into nine compartments. As in the ancient *mandalas* (those magic diagrams that formed the basis of temple planning), in the centre of the centre is: Nothing (fig. 61). Nothing, which is Everything — which is Brahman, the Ultimate Being. (I find the close parallel to the "black holes" of contemporary physics quite mind-blowing!) In the second project (a museum and performing arts centre) the nine square *mandala*, on which the centuries-old city of Jaipur is based, is expressed directly in the plan. A pattern of high walls defines the squares. The enclosed spaces (housing the various facilities) adhere to these peripheral walls—a spatial concept originated in the Kapur Guest House (fig. 8), and developed further for the Archaeology Museum (fig. 9).

The reference to the *mandalas* is not done merely in an archaelogical sense — grave-digging! — for it also reflects contemporary sensibilities. The *mandala* is a timeless and universal form, in fact found in many other cultures around the globe and across history. Perhaps it is the direct outcome of something physiological in the deep-structure of the human brain. Certainly, looking back at my own work, I find a reappearance again and again of the square plan (commencing with the Handloom Pavilion and the Bhavnagar Houses) and yet I hope these are also very much buildings of their time; for I believe that an architect can use the past only to the extent that he can re-interpret it; re-invent it.

In that sense, architecture should always be simultaneously both old *and* new for it comes into being at the intersection of three major forces. The first represents technology and economics; the second, culture and history; and the third, the aspirations of people. This third force is perhaps the most important of all. In Asia we live in societies of great cultural heritage — societies which wear their past as easily and naturally as a woman drapes her sari. Yet in understanding and accepting this past, let us never forget the existing conditions of so many of the people, and their struggle to shape a better future. Only a decadent architecture looks obsessively backward ("I have seen the past, and it works!"). At its most vital, architecture is an agent of change.



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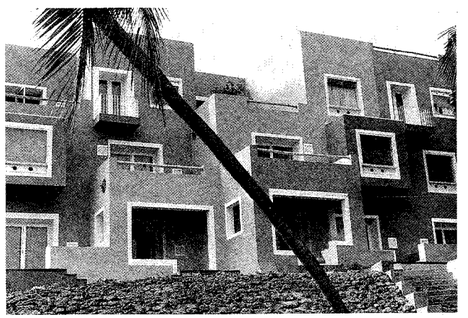
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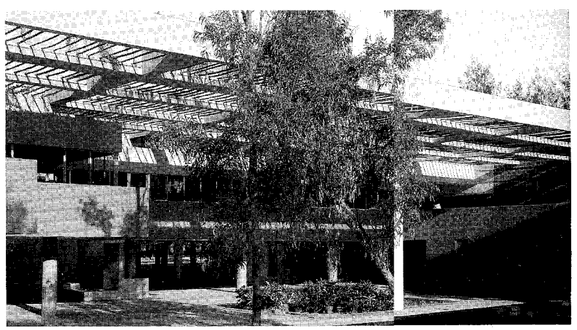
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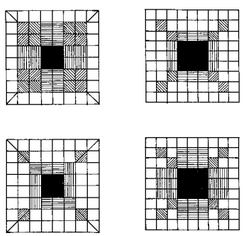
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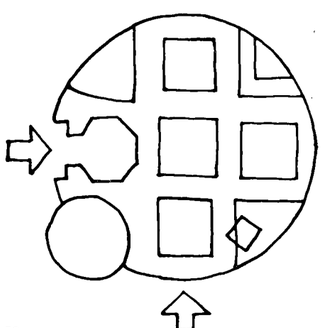
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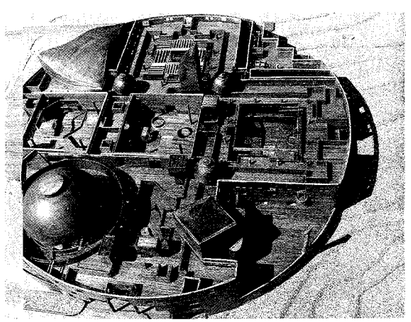
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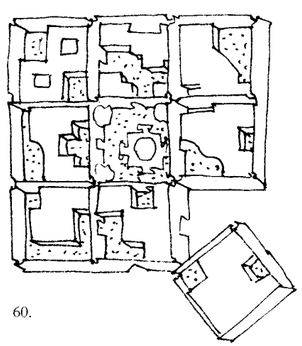
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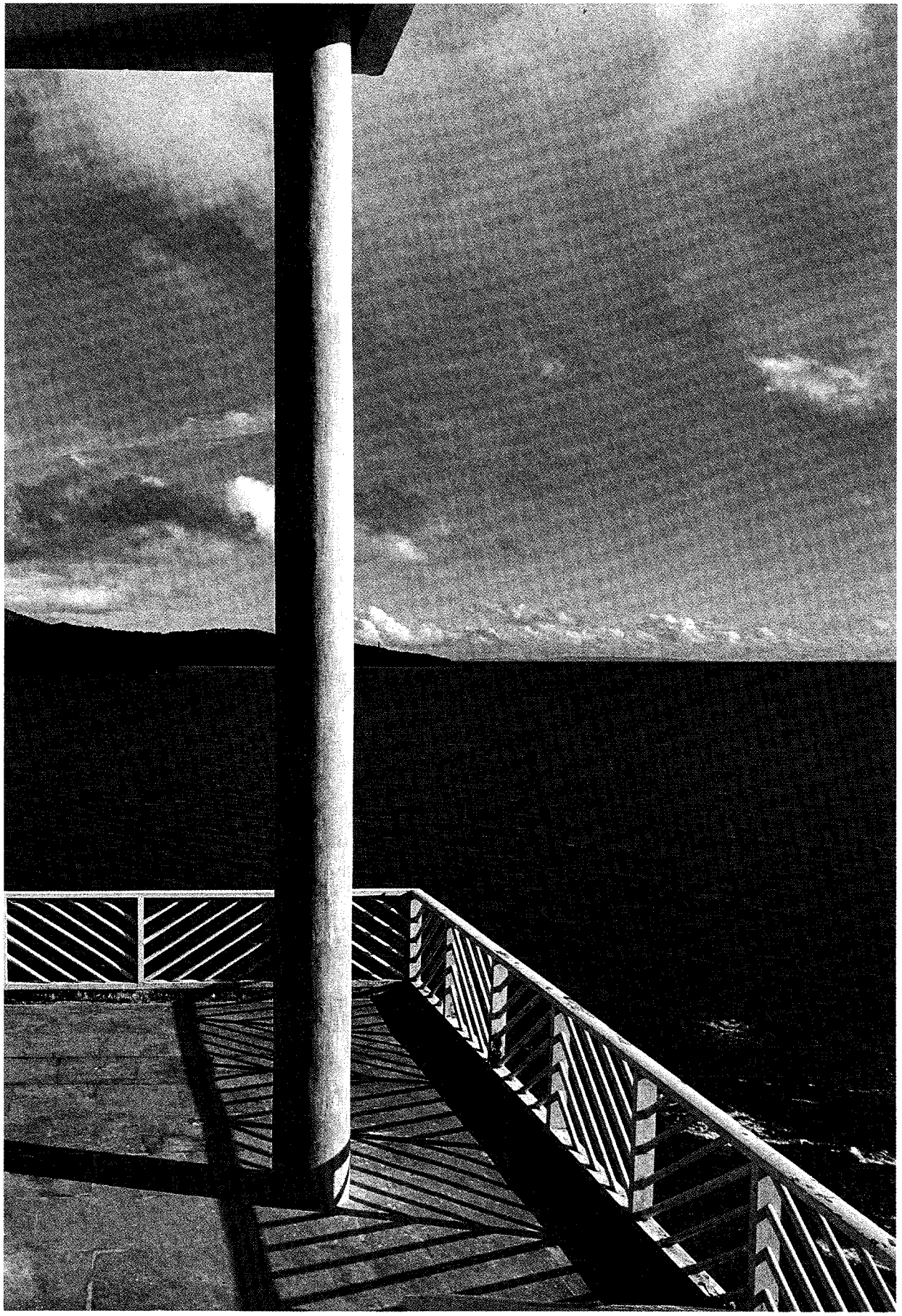
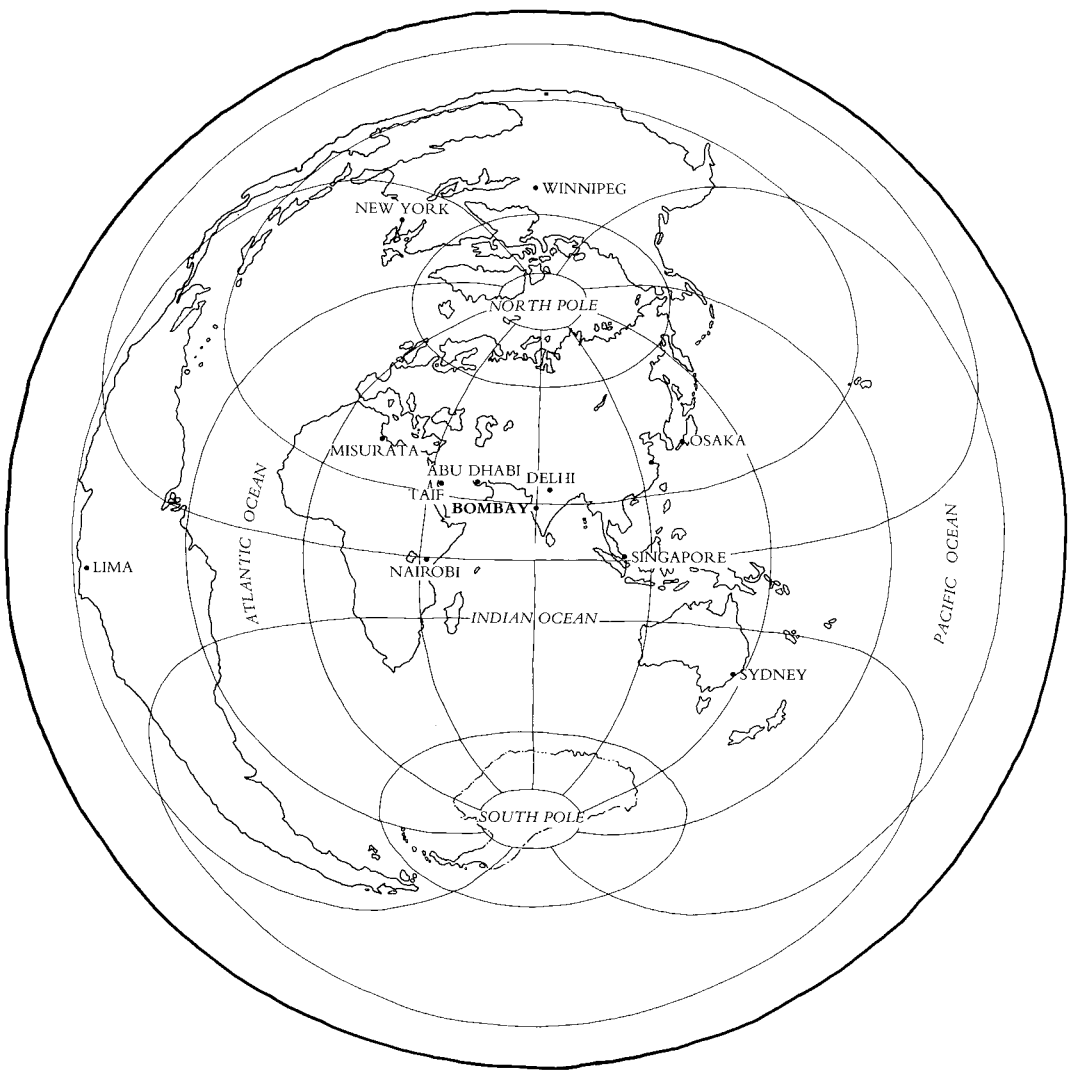


Bay Island Hotel, Port Blair, Andaman Islands.



Map of the World centred on Bombay.